THE DR WHO annual 1974

Authorised edition as seen on BBC tv

Starring **JON PERTWEE** as **DR WHO**

THE DR WHO
annual
1974

SBN 7235 0185 8

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the
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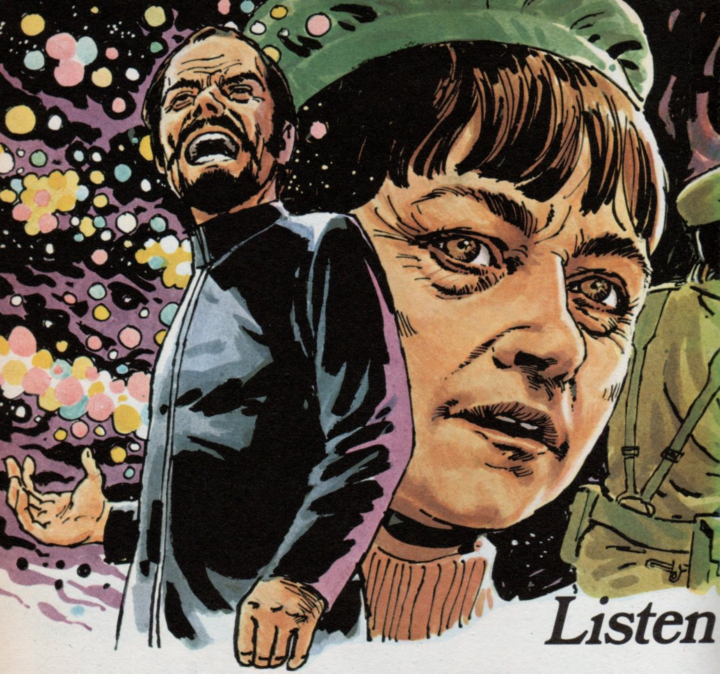


Listen

Jo Grant leaned over the glittering panel of the experimental complex in the centre of the laboratory. "Ionic vibration level rising, Professor. Reaching 82 now," she read off the flickering dials.

The man opposite to her sighed. "Better, Miss Grant. But still not good enough," said Mirko Vetich.

He straightened in his revolving stool and rubbed a weary hand through his untidy brush of steel-grey hair. He was a stocky man in his middle years, and his broad, open face might have suited an inn keeper. But Jo knew better, for behind that placid face lurked one of the sharpest brains in the field of inter-stellar audio research.

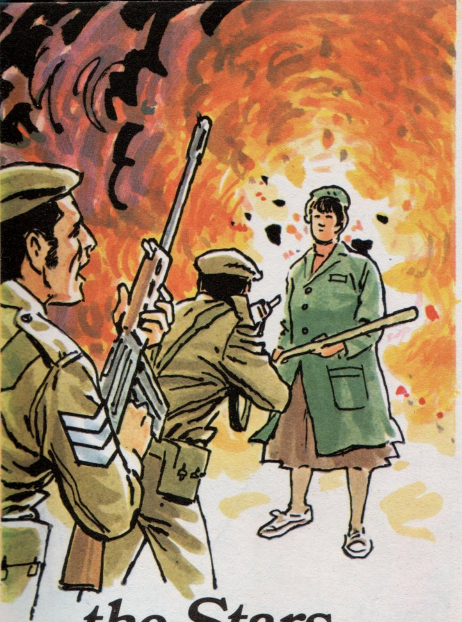
Right now, however, he was a very tired man. He checked the readings on more dials on his machine and shook his head sadly. "I'm afraid we've drawn a blank again," he admitted.

He pushed a red master-control switch, and the hum of the machine died away as needles dropped back to zero and lamps blinked off.

"I need a rest, and maybe the machine needs one too," he said. "Come on, Miss Grant. Let's go and get a coffee in the rest room."

As Jo preceded him through the door of the laboratory, Professor Vetich paused in the act of locking it as he caught sight of a middle-aged woman shuffling towards him. She was dressed in the neat bottle-green overalls and matching dust-cap worn by all the domestic and cleaning staff at Unit Headquarters. But her neat outfit was rather spoiled by the fact that she was wearing a pair of sneakers that looked a couple of sizes too big.

"Hello, Mrs. Prentice. Are you wanting to dust around my little sanctum this morning?" asked



–the Stars

Vetich.

"That's right, sir." She held up a plastic bucket that held various mops and dusters. "The Brigadier said to get some of the dust off that old telephone box that's in the corner of your room."

The scientist hesitated, and glanced towards Jo Grant. "Well, that depends on Doctor Who really. He owns the – er – old telephone box, you know."

Jo could not repress a smile at Mrs. Prentice's disparaging reference to the marvellous space-time vehicle. But she also knew that it was quite safe, since Dr. Who had secured the electronic locks on it before he left.

"Oh, yes, I'm sure the Doctor wouldn't mind you dusting it," she told the cleaning woman.

The darkened laboratory glowed with light again as Mrs. Prentice shuffled across to the light-switches. She put down her cleaning tools and bent to massage her feet. "Ooh! Poor old feet," she sighed. "No wonder you got to have big sneakers to keep you happy!"

A few moments later she was industriously sweeping up crumpled sheets of notepaper, which Professor Vetich had used for his calculations. The room was very quiet. Mrs. Prentice liked it that way. She enjoyed being alone to do her simple chores . . . .

She would not have been so happy had she known that at that very moment the laboratory was being scanned from afar by a pair of deep-set, sharp eyes. They were the eyes of the Master, who stood before a round viewing screen in the control-room of his space-time ship. For a moment he watched the cleaning woman, then adjusted the controls so that the scanner moved in for a close shot of the Professor's experimental machine.

"Pah!" he scoffed aloud. "A pitiful bit of equipment! What kind of a fool is Vetich, to think he can reach beyond this galaxy with ionic vibrations."

He was about to switch off his scanning device when he saw Mrs. Prentice suddenly lose her balance and lurch against the control board. She had, in fact, tripped over one of the shoelaces of her sneakers.

Her arms flailed wildly as she went down, and caught the red master-control switch. The device hummed into life. But Mrs. Prentice had caught her head on a sharp corner, and lay across the control-board moaning with pain.

The Master felt no pity as he watched. He was devoid of any such emotion. He was a creature so cold, cruel and calculating that the only reason he continued his scan was the sudden switching on of the device. He heard the ionic vibrator rise to a high keening note. He saw Mrs. Prentice suddenly stiffen and stop moaning. Very slowly she raised her head, her eyes staring wide, as if she was listening . . . .

At first it was like a faint hissing noise that went with the pain of the bump. It grew into faint, drifting surges of electrons . . . whispered impulses swimming through hyperspace from a world half a thousand light-years away.

I must be going crazy, she thought. It's like – it's just like a voice whispering inside my head. Must have been the bump that did it . . . There's the voice again . . . What? What's that you're saying?

I am Zex. I am of the System gger. Who are you?

Me? I'm Mrs. Prentice. Yes. I've had a tumble, and I'll be all right in a minute. Then I'll stop hearing that voice.

I am Zex. I am Zex.

Alright, alright! I heard you the first time. Well, I'll *pretend* you're a real person. Where are you?

The System gger is on the fourth paraleptic level of the Galaxy –

Look, Mr. Zex, I don't know if you're having me on, but I wish you'd stop whispering. I've got my cleaning to do.

Wait! Your brain pattern is crude. But try and answer me. What System are you?

"System indeed! Such nonsense!" thought Mrs. Prentice, as she made a determined effort to get back to her work.

The Master's eyes were burning with excitement. His long, thin fingers worked frantically to tune his own ionic vibrator to the same frequency as that of Professor Vetich's device.

This is fantastic, he thought. The woman has made contact. But how? Ah, I think I know. In that particular volume of space only her mind, suddenly shocked by that fall, can act as receiver; since only the electrical characteristics of her own particular nerve-cell system can resonate to the vibrations of the carrier beam from the Star System gger . . . .

He pored over his instruments, and made a final adjustment. Then, glancing at his viewing screen, he saw with grim satisfaction that Mrs. Prentice was suddenly frozen in the middle of sweeping with a brush . . . .

Good. Now I can use your mind as I wish, thought the Master. Concentrating his thoughts, he began to reach into hyperspace . . . .

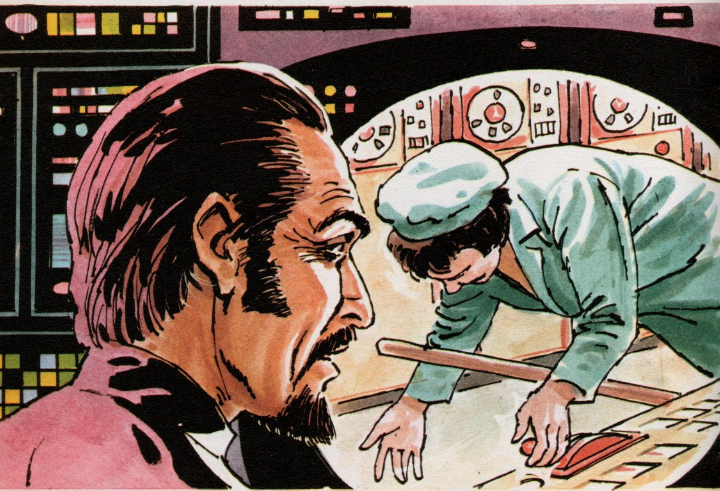
Zex. This is the Master. Listen to me. This Planet is called Earth. A rich Planet. You would help me conquer it?

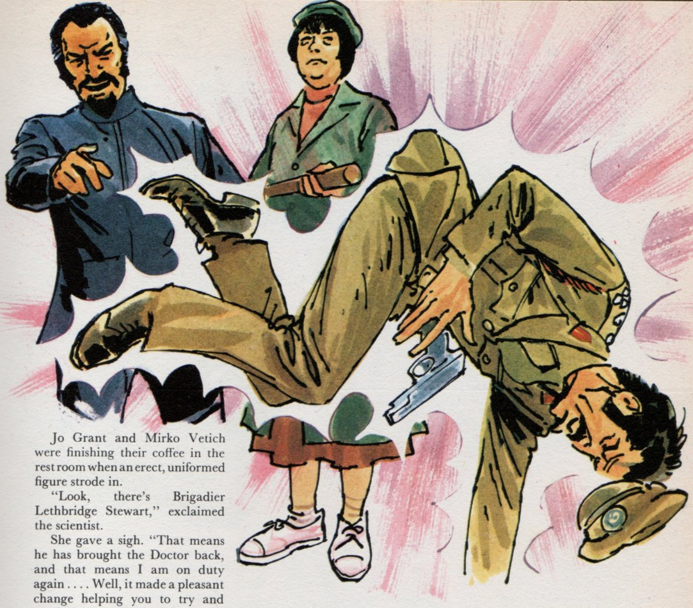
Zex is all powerful. But I cannot leave the space-time fabric. How can I help you to conquer this Planet Earth?

Look at my brain pattern, Zex. How does it compare with that of the woman?

Infinitely higher, Master.

Then listen to me, Zex. I have a device that can transport *your* brain pattern here – into the woman's body. Then with your powers we shall subdue the Earthlings . . . .





Jo Grant and Mirko Vetich were finishing their coffee in the rest room when an erect, uniformed figure strode in.

"Look, there's Brigadier Lethbridge Stewart," exclaimed the scientist.

She gave a sigh. "That means he has brought the Doctor back, and that means I am on duty again . . . . Well, it made a pleasant change helping you to try and reach the stars, Mirko."

The soldier came towards them. "Have a good trip?" asked Jo.

"Tolerable, Miss Grant, tolerable," was the reply. "Your Dr. Who is a very difficult person to keep track of. I'm glad it's *your* regular job, not mine. But we managed to get whatever it was he wanted for the *Tardis*, and he's gone straight down to the laboratory to fit it. Captain Yates is with him."

Jo pushed back her chair. "Then I suppose I'd better go and –" She broke off as the rest room slowly faded into darkness.

They all stared as the light bulbs flickered out. At the same moment a faint, barely perceptible high pitched hum set the coffee cups on the table vibrating until they almost blurred.

The Brigadier snapped to his feet and groped towards the phone. "What the devil – Why don't they change over to emergency power?" he muttered.

As if in answer, the lights suddenly came back on. Jo saw that Vetich was staring at the coffee cups. "Ionic vibrations!" he murmured, then came to his feet and made a dive for the door. "My machine!"

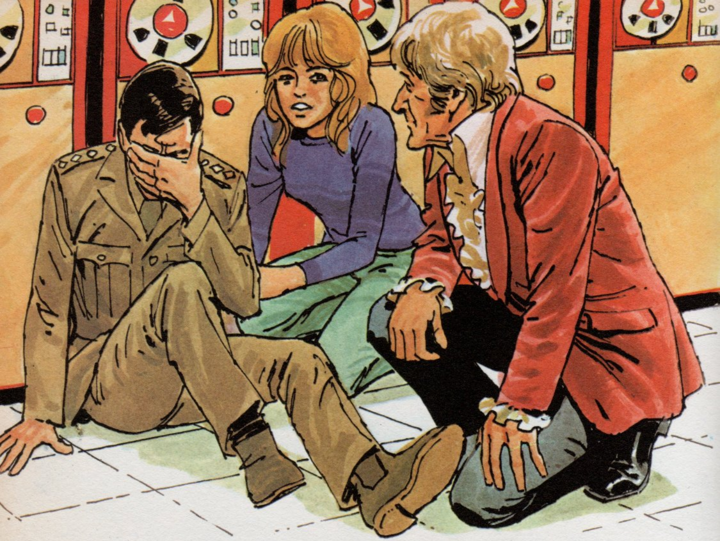
Jo went after him, with the Brigadier at her heels. As they hurried down the corridor, they saw two figures approaching.

One was Mrs. Prentice. She still held a mop in her hand, but now she seemed to glide over the polished floor. Beside her strode a dapper, erect man in close-fitting black. At the sight of the thin, satanic face and burning eyes Jo gasped and dragged Vetich to a halt. "No – wait! That's the Master. He's Dr. Who's enemy. He's dangerous."

The Brigadier, well acquainted with the Master, motioned them against the wall and slipped his gun from its holster. Ignoring Jo's warning, he stepped forward, barring the passage. "Stand aside, Mrs. Prentice. I am arresting this man," he barked.

The Master gave a thin smile. He glanced towards the cleaning woman, and made a motion with his finger. Mrs. Prentice raised her mop.

"Look out!" screamed Jo, sensing danger.



The startled soldier ducked instinctively and the next moment he was flung violently aside. He crumpled against the wall and slid to the floor.

For a moment Jo stared, paralysed with fear. Then she grabbed Vetich by the arm and dragged him through a doorway. She slammed the door and leaned against it.

"But we've got to help him," the scientist protested.

"In a moment, Professor," begged Jo. "I don't think the Master will follow us. Whatever he's done to Mrs. Prentice, he is using her power to blast his way to the Operations Room."

"It's amazing . . . that mop . . . some kind of force field or beam," murmured the scientist.

They put their ears to the door and listened. From outside came a low groan.

Jo opened the door. The corridor was empty except for the Brigadier, swaying unsteadily on his feet and rubbing his head. They hurried to help him. Vetich picked up his revolver and handed it to him.

The Brigadier straightened himself with an effort. "The Operations Room! I've got to raise the alarm," he exclaimed, and ran off.

Vetich shook his head and he looked after the soldier. "Something tells me that the normal security precautions are not going to keep the Master from gaining control," he said. "Whoever that is with him, it's not Mrs. Prentice."

"Then we've got to get Dr. Who right away. He's the only one who can stop the Master now," rapped Jo.

They ran to the laboratory. The door was wide open. Inside they found the Doctor bending over Captain Yates, who lay propped against a wall.

"Jo!" he exclaimed. "It's the Master! He was here in the laboratory when we came in. And a woman – the cleaning woman . . ."

Jo dropped on her knees beside him. "I know. He – she attacked the Brigadier when he tried to stop them. Is Captain Yates badly hurt?"

"No. Just stunned," replied the Doctor. He rose to his feet. "Have you any idea what this is all about? Where the woman got her extraordinary powers?"

"I'm afraid not." Jo shook her head.

From behind them Mirko Vetich said: "I think the answers may be here – on tape, Doctor."

They turned to find the scientist holding up a small cassette-tape. "When the machine was switched on again, it started the tape-recorder working. So whatever has transpired while we've been away should be on here."

He slipped the cassette into a slot and flipped a button. It was no ordinary playback, for the vibrations which had been picked up and taped were now fed through a translator, and emerged as words spoken in a flat, metallic voice. They listened in amazement as Zex made contact with Mrs. Prentice, and was then insidiously manipulated by the Master.

"So you were right, Professor," said Jo. "This Zex – whoever or whatever he is – has made the Time Jump to Earth, and is using Mrs. Prentice."

"But this is absolutely amazing," began Dr. Who, when the whole building rocked to a violent explosion.

They hurried outside. A pall of smoke was settling over a section that had been shattered.

"Well, so much for the security block," said Jo. "It won't take the Master long to get through to the Control Room."

Even as they watched, troops of Unit H.Q. began to swarm round the area, their automatic weapons ready. They stared in disbelief as the slight figure of Mrs. Prentice emerged from the shattered building. In that instant, she had raised her mop and swung it from left to right. The force-field hurled men backwards. Those who held on to their weapons opened fire, but the fussilade apparently had no effect on the cleaning woman. She turned and disappeared back into the shattered building.

Jo turned to speak to Dr. Who, and found him staring with sudden inspiration.

"Did you see the way she glides? I should have recognised it at once. I do believe it's the way to discourage Zex. Come along."

He led the way into the laboratory, and cleared a space on the workbench. "Ah, here's a nail, and a strip of metal . . . Jo, can you get me a fork, and an egg-cup?"

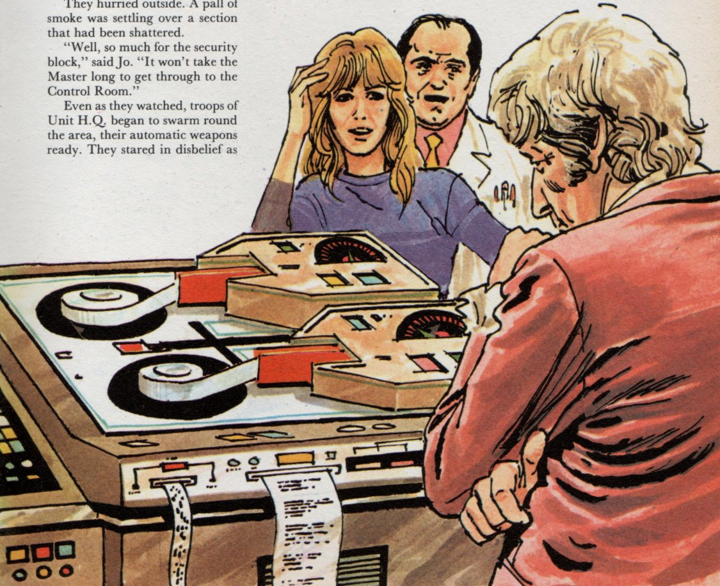
Jo was dying to ask: "Whatever for?" But something about the Doctor's urgency made her bite off the words and hurry away.

By the time she got back, he had rigged up the most extraordinary contraption, made from bits and pieces. It rose up from the bench like some nightmare invention. But Jo knew from the intense concentration of the two scientists that whatever they were making was of vital importance.

"Ah, the fork," said Dr. Who, holding out his hand. "Thanks, Jo. Now if you'll bend that, Professor, it should make a passable vibro-flange. I will be using the egg-cup as a stabilizer."

Jo could not contain her curiosity. "What is it, Doctor? What are you making?"

Speaking almost absentminded-



ly as he worked, Dr. Who said: "The Star System gger being on the fourth paraleptic level, creatures there maintain a very delicate equilibrium. So delicate that it can be upset quite literally by the slightest deviation in astro modulation .... And this, my dear Jo – Ah, finished with the fork, Professor? Thank you. – Yes, this crude little effort, Jo, is a model astro modulator. And by spinning it in reverse – so ... Well, let's hope it upsets our astral intruder so much that he will retreat to the System gger."

The bent fork was now spinning round, gaining speed, and causing other parts of the model to rotate. Suddenly Vetich stiffened and hurried to his device, which was humming loudly. "Look! The ionic vibrations – they're building up!" he exclaimed.

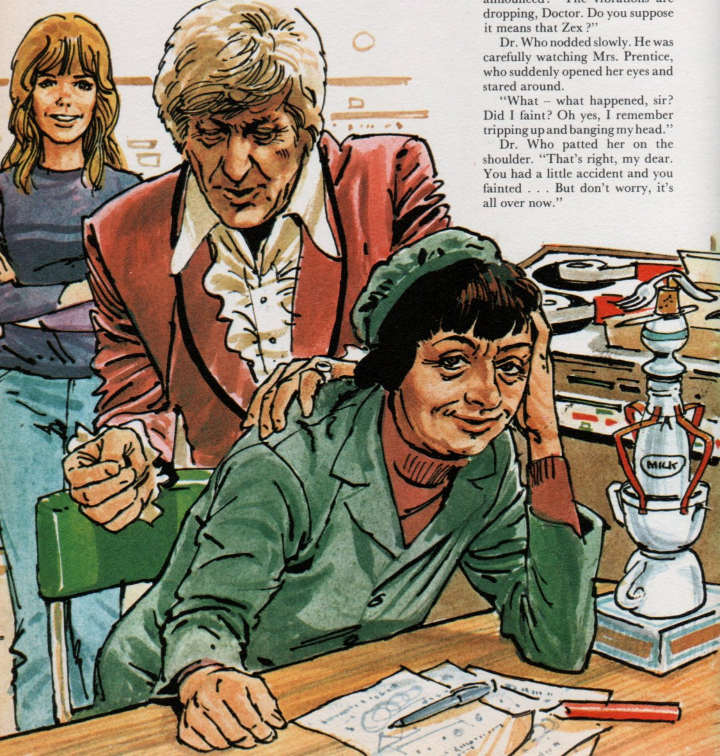
There was a sudden scuffle of feet in the corridor outside, and Mrs. Prentice was catapulted into the room. Her frail figure seemed to be hurled, sprawling across the glistening control-board, and she lay there, panting heavily.

Dr. Who leaned over her and gently helped her to sit upright in one of the revolving stools. At the same moment, Vetich frowned over his flickering dials and announced: "The vibrations are dropping, Doctor. Do you suppose it means that Zex ?"

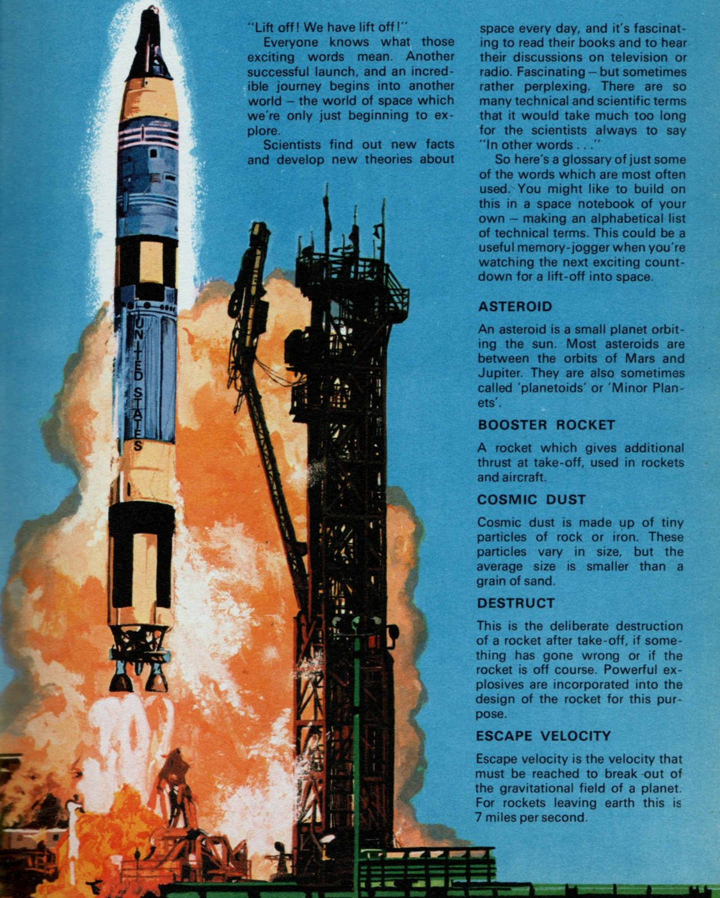
Dr. Who nodded slowly. He was carefully watching Mrs. Prentice, who suddenly opened her eyes and stared around.

"What – what happened, sir? Did I faint? Oh yes, I remember tripping up and banging my head."

Dr. Who patted her on the shoulder. "That's right, my dear. You had a little accident and you fainted . . . But don't worry, it's all over now."



IN OTHER WORDS



"Lift off! We have lift off!"

Everyone knows what those exciting words mean. Another successful launch, and an incredible journey begins into another world – the world of space which we're only just beginning to explore.

Scientists find out new facts and develop new theories about space every day, and it's fascinating to read their books and to hear their discussions on television or radio. Fascinating – but sometimes rather perplexing. There are so many technical and scientific terms that it would take much too long for the scientists always to say "In other words . . ."

So here's a glossary of just some of the words which are most often used. You might like to build on this in a space notebook of your own – making an alphabetical list of technical terms. This could be a useful memory-jogger when you're watching the next exciting countdown for a lift-off into space.

ASTEROID

An asteroid is a small planet orbiting the sun. Most asteroids are between the orbits of Mars and Jupiter. They are also sometimes called 'planetoids' or 'Minor Planets'.

BOOSTER ROCKET

A rocket which gives additional thrust at take-off, used in rockets and aircraft.

COSMIC DUST

Cosmic dust is made up of tiny particles of rock or iron. These particles vary in size, but the average size is smaller than a grain of sand.

DESTRUCT

This is the deliberate destruction of a rocket after take-off, if something has gone wrong or if the rocket is off course. Powerful explosives are incorporated into the design of the rocket for this purpose.

ESCAPE VELOCITY

Escape velocity is the velocity that must be reached to break out of the gravitational field of a planet. For rockets leaving earth this is 7 miles per second.

FREE FALL

This term refers to fall without propulsion or slowing down by parachute.

GANTRY CRANE

This is the framelike structure which is placed around the rocket during preparation. It is on wheels, and it enables all the different levels of the rocket to be reached.

HEAT SINK

Material which can absorb tremendous amounts of heat, used to protect a re-entering vehicle.

IONOSPHERE

The ionosphere is one of the upper strata of the atmosphere. The pressure here is very low, and the molecules of gas which make up the thin atmosphere break apart, releasing the atoms of which they are made. The atoms in turn lose one or more of the electrons which whirl about their nucleus, and are transformed into ions – which gives us the name of the layer.

JET PROPULSION

Jet propulsion is a principle used to drive aircraft and rockets. The engines of rockets differ from other kinds of jet engines by being self-contained – that is, they carry their fuel and also the oxygen needed to burn it. This is the reason they can operate above the earth's atmosphere, as they do not need air to burn their fuel.

KEPLER

The German astronomer, Johannes Kepler, wrote about space in the 17th century. His *Astronomia Nova* was one of the first important documents in the science, containing laws about the motion of the planets. And a short work called *Dream* tells of the moon and its 'inhabitants'.

LASER

Laser is a much easier way of saying Light Amplification by Stimulated Emission of Radiation. A laser produces an intensely powerful light concentrated onto a narrow beam, and it has extensive uses in science and technology.

MACH NUMBER

Named after Ernst Mach, an Austrian physicist, the Mach number refers to speed – inside the atmosphere only. Mach 1 is the speed of sound, and all Mach numbers are based on this. Mach 2 is twice as fast as sound, and so on.

NUCLEAR ROCKET

In a nuclear rocket a fluid – for example liquid hydrogen or water – is heated into gas or steam by a nuclear reactor. This is then ejected to act like a rocket exhaust.

ORBITAL VELOCITY

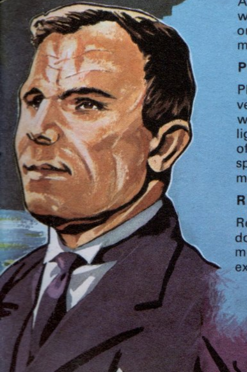
A speed of five miles per second will pull an artificial satellite into orbit round the earth. That is 18,000 miles per hour—the orbital velocity.

PHOTONS

Photons are tiny grains of light – very small particles of light energy which when put together make light itself. They move at the speed of light, which is the greatest speed known to us – 186,000 miles per second.

RETROROCKETS

Retrorockets slow a spacecraft down by firing in the direction of movement. They are used, for example, during re-entry.



SLOSHING

Sloshing is just what it sounds like! It is the splashing about of fuel in a tank which is less than full. It can be a problem – and has to be avoided.

TELEMETRY

Instruments can be read from a distance by the process of telemetry. The instruments are coupled with a radio transmitter, so that readings are broadcast back as changes in a radio signal.

UFO

Unidentified Flying Object. An object in space which defies description! A flying saucer, maybe?

VAN ALLEN BELT

The Van Allen belt is a radio-active belt which almost encircles the earth at a great height. It was discovered by the American Explorer-6 satellite, which was launched in 1959.

WEIGHTLESSNESS

The impression we have of weight comes from an object's resistance to the pull of gravity. So if something is moving freely in an orbit it follows the pull of gravity freely, and the impression of weight disappears.

X RAYS

The OSO Orbiting Solar Observatory – which went into orbit in 1962, proved that X rays are emitted by the sun, though they do not penetrate our atmosphere.

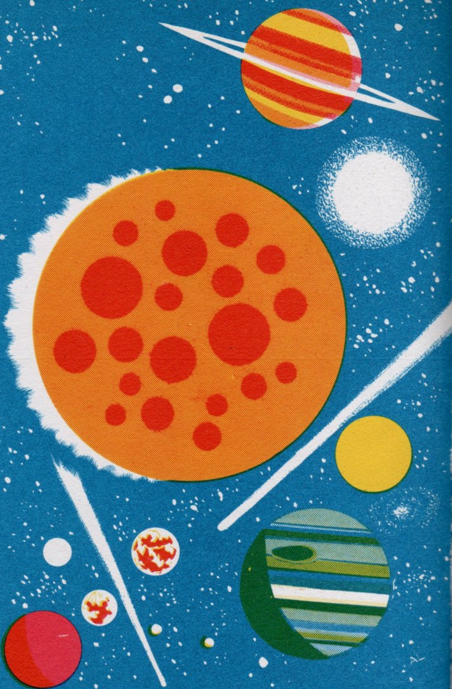
YURI GAGARIN

Major Yuri Gagarin was the first man to go into orbit round the earth. He did so in April 1961.

ZIOLKOVSKY

The Russian mathematician, Konstantin Ziolkovsky, was the first to realise that journeys into space would be feasible using a vehicle powered by a rocket motor. That was at the beginning of this century – and he was certainly right!

signs in the SKY



BAILY'S BEADS

In the year 1836 a certain Francis Baily noticed that as a result of the sun shining through the depressions between the lunar mountains during an eclipse, the moon reduced the sun to a crescent which looked like a string of beads. Whenever this occurs now it is referred to as 'Baily's Beads'.

BOOTÉS THE PLOUGHMAN

Legend tells us that Bootés invented the plough, and on his death was taken up to the heaven with his plough and oxen, where his constellation can still be seen. This group of stars is also known as Charles's Wain and The Seven Plough Oxen.

THE SEVEN METAL PLANETS

The alchemists ordained that the seven metals should be dedicated to seven of the planets which appeared in the sky. The Sun was the Gold Planet, the Moon was Silver, Mercury was Quicksilver, Venus was Copper, Mars was Iron, Jupiter was Tin and Saturn became the Lead Planet.

SHOOTING STARS

The brightly shining meteors which flash across the sky and are more familiarly known as 'shooting stars' have always been regarded as omens of evil or good fortune. Before the death of Julius Caesar, shooting stars exploded in the sky, and other reports tell of a star falling from the heavens at the birth of a great man.

The Arabs believed that these meteors were thrown down from heaven by angels, angry at a mischievous genie who was always trying to fly up to the skies to see just what heaven looked like!

ULLOA'S CIRCLE

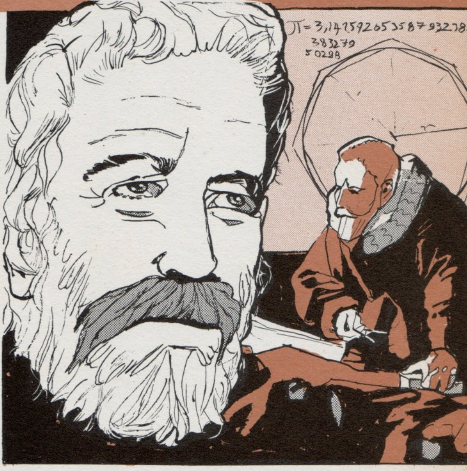
Antonio de Ulloa founded an observatory at Cadiz in the eighteenth century for he was very interested in all scientific matters. The luminous ring, which some dub 'a white rainbow' which appears near the sun in misty weather in some alpine regines is named after him.

EUREKA!

Since ancient times, man has been making fantastic discoveries about our world, and creating marvellous inventions. And the world over, the cry 'Eureka!' has been heard.

Its been said in hundreds of different languages, but its meaning has always been the same: 'I have found it!' Eureka means that weeks, months, and years of hard work, patience, and study have at last paid off.

Let's take a look at some of the greatest scientists of all time, beginning with the one who really did shout 'Eureka!'



ARCHIMEDES SOLVES THE PROBLEM

Archimedes had a problem, and it was on his mind continually, even as he was taking his bath.

Hiero, the king of Syracuse, had ordered his royal goldsmith to make him a crown of pure gold, to present as an offering to the gods. The craftsman had duly brought a golden crown to the king, and had been paid for his work.

But King Hiero was worried. One of his courtiers had warned him that the goldsmith was a dishonest fellow, and that he might well have made the crown out of a poor metal which just looked like gold. If Hiero offered a poor metal crown to the gods, might they not be displeased and angered?

What terrible punishments might the people of Syracuse suffer for such an insult? Yet how could he possibly find out for sure whether the crown was pure gold or not?

Hiero sent for Archimedes, the brilliant mathematician. If anyone could solve the problem, then it would be Archimedes.

Archimedes longed to help the king, yet he was very troubled. How could he possibly find out the truth?

The answer came as he climbed into his bath . . . .

Archimedes noticed that as he sat in the bath, water poured out over the sides, and splashed onto the ground. Yet Archimedes knew that, for instance, a piece of wood placed on the water would float, and hardly any water would flow over the sides.

Archimedes realised at once that he had stumbled on the basis of a tremendously important scientific principle – different materials will displace different amounts of water.

And that was when the half-naked figure of Archimedes could be seen running through the streets, joyously shouting 'Eureka! Eureka!'

The problem of the crown was almost solved. Archimedes weighed the crown, and ordered a piece of gold from the king's treasury, weighing exactly the same. He immersed both the crown and the gold in tubs of water, and measured the amount of water which each displaced.

The crown displaced less water than the chunk of pure gold. The goldsmith had lied – the crown was not real gold at all, but a cheaper metal.

So Archimedes had not only solved the king's problem, but he had discovered a basic principle of physics which scientists the world over use today.

A WHOLE NEW WORLD OPENS UP

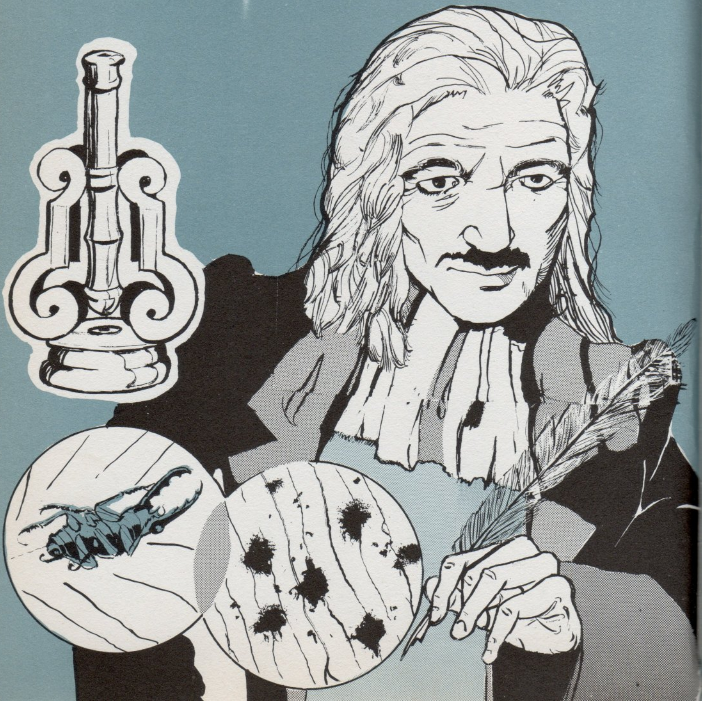
The townspeople of Delft knew that the janitor of the City Hall was a studious young man, but they could not have forseen that Anton Van Leeuwenhoek would develop an instrument which was to revolutionise all scientific thinking, notably in the field of medicine.

Every night, Anton would rush home from his work as janitor, and continue his work on the project which so fascinated and excited him. Anton Van Leeuwenhoek was pioneering the microscope.

In those days, spectacle makers could only grind a crude kind of magnifying glass. It seemed to Anton that it must be possible to make better and better lenses, which would magnify things even more.

He spent hours watching the spectacle-makers at work, and learnt all he could of their craft. And then he began to work on the project himself, grinding lens after lens, until after years of hard work, and amazing patience, Anton had perfected a lens through which objects seemed 270 times larger.

Anton fitted this wonderful lens into the structure which we now recognise as a micro-



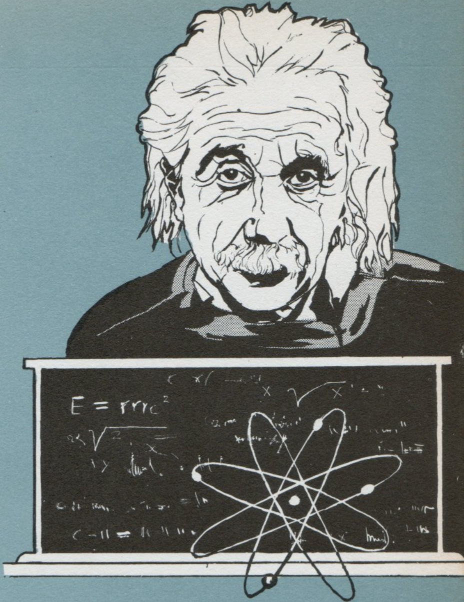
scope, and eagerly looked down. The things he saw there fascinated, delighted, and often completely bewildered him. The head of a fly was revealed as a vastly complex organism, and plant seeds, hairs, and even Anton's own skin, revealed structures he could never have guessed at.

The news of Anton's discoveries spread fast, and one day he was visited by an eminent Dutch scientist who wanted to see the wonders for himself. The scientist was overcome with excitement, and urged Anton to write of his findings to the Royal Society in England.

So began a fascinating correspondence, which was to last for fifty years. Anton's letters told of discovery after discovery which changed the course of scientific thinking of many years.

Perhaps his most amazing discovery – indeed one which many people just could not at first believe – was the teeming microscopic life in a drop of rain water. Anton himself was startled when he first saw what he called his 'wretched animalcules'. But soon scientist after scientist saw them for himself, and the detailed study of one-celled animals began.

More wonders were to be revealed under Anton Van Leeuwenhoek's microscope, among them the existence of blood vessels, and also of tiny bacteria. Anton Van Leeuwenhoek's life was exciting indeed, with every day bringing some new discovery. And his discoveries were to benefit the world.



A GREAT GENIUS

'The greatest genius of all time' – that's how many people have spoken of Albert Einstein. This brilliant scientist and mathematician had a truly phenomenal capacity for understanding the most complex of problems – and for finding solutions to them. His deceptively simple-looking equation *$E = mc^2$*, was in fact the result of some amazing calculations; and that one small equation effectively opened the doors to the age of atomic energy.

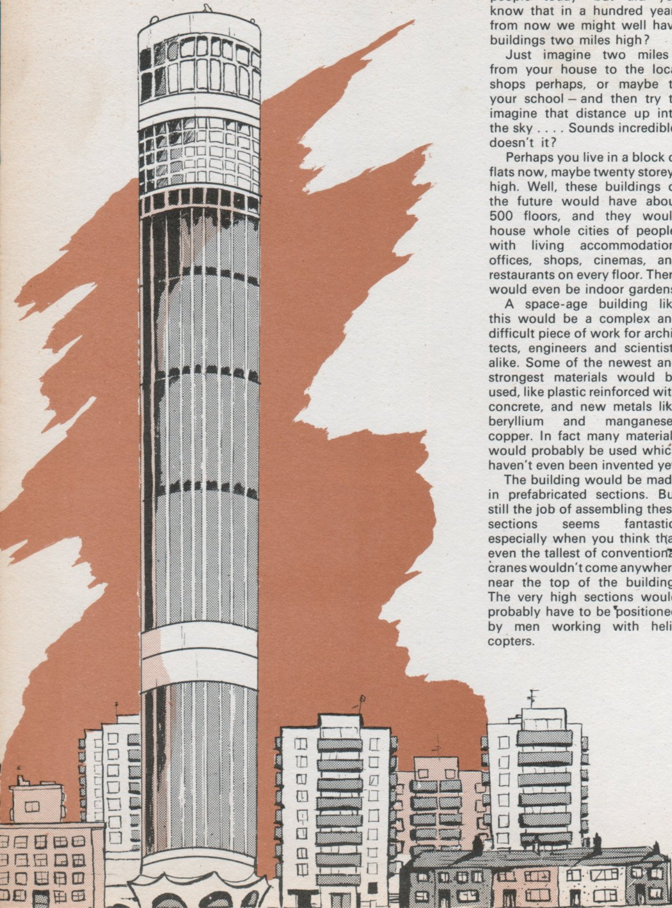
Einstein's theory of relativity is so profound and far-reaching that it is difficult for us to understand it in its entirety even now. And when Einstein first published it, in the early years of this century, it seemed almost incredible, it was so revolutionary an idea.

Einstein was driven from his native Germany by the Nazis because he was Jewish, and he went to live in New Jersey, in the United States. Here he taught and studied, and here he worked on many of his brilliant theories.

No scientific question was too enormous for Einstein's incredible brain. He was a brilliant man, a genius – and a hard-working, gentle and quiet man.

Albert Einstein was one of the greatest thinkers the world has ever known.

TWO MILES UP



Skyscraping blocks of flats and offices house thousands of people today – but did you know that in a hundred years from now we might well have buildings two miles high?

Just imagine two miles – from your house to the local shops perhaps, or maybe to your school – and then try to imagine that distance up into the sky . . . . Sounds incredible, doesn't it?

Perhaps you live in a block of flats now, maybe twenty storeys high. Well, these buildings of the future would have about 500 floors, and they would house whole cities of people, with living accommodation, offices, shops, cinemas, and restaurants on every floor. There would even be indoor gardens.

A space-age building like this would be a complex and difficult piece of work for architects, engineers and scientists alike. Some of the newest and strongest materials would be used, like plastic reinforced with concrete, and new metals like beryllium and manganese-copper. In fact many materials would probably be used which haven't even been invented yet.

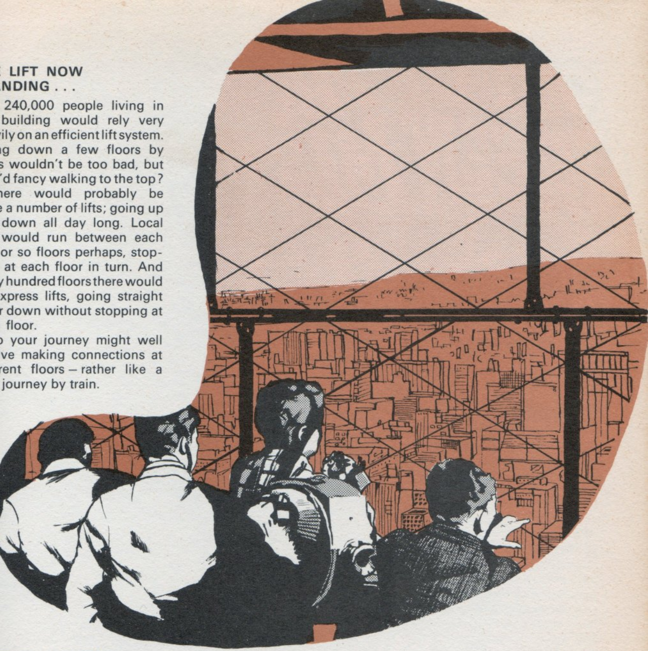
The building would be made in prefabricated sections. But still the job of assembling these sections seems fantastic, especially when you think that even the tallest of conventional cranes wouldn't come anywhere near the top of the building. The very high sections would probably have to be positioned by men working with helicopters.

THE LIFT NOW STANDING . . .

The 240,000 people living in the building would rely very heavily on an efficient lift system. Going down a few floors by stairs wouldn't be too bad, but who'd fancy walking to the top?

There would probably be quite a number of lifts; going up and down all day long. Local lifts would run between each fifty or so floors perhaps, stopping at each floor in turn. And every hundred floors there would be express lifts, going straight up or down without stopping at each floor.

So your journey might well involve making connections at different floors – rather like a long journey by train.



HEATING, LIGHTING – AND GYROSCOPES

The huge engines for the lifts would be housed on the top floors of the building, and also at the top would be some very important pieces of equipment – gyroscopes.

Every tall building is subjected to a very slight sway in gale force winds, and this would obviously be a big danger to a building with 500 floors. Spinning gyroscopes would be used to help prevent this, as they will always remain pointing north.

The huge gyroscopes used in our space age building would be made of tons of steel, and powered by electric motors, which could make them spin faster during high winds.

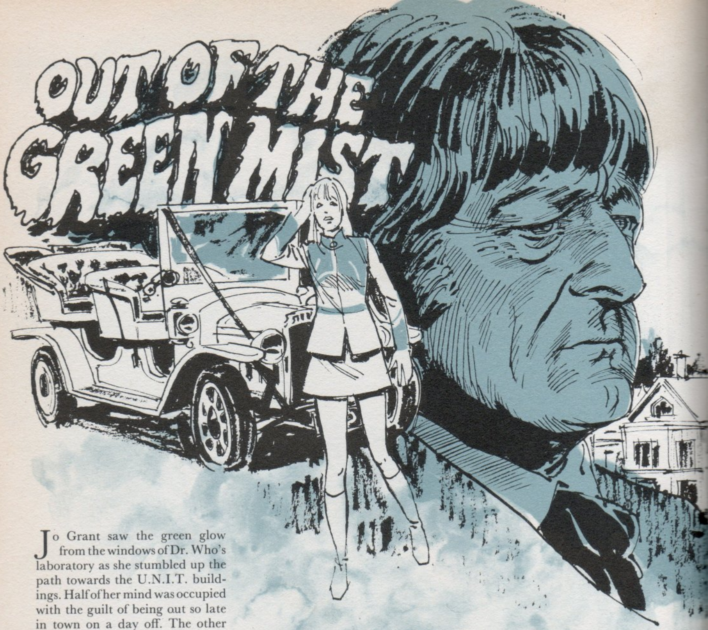
Extensive strip lighting would make everywhere as bright as day in the building, and efficient heating and ventilation systems would ensure that the temperatures and humidity were pleasant to live in all the year round.

The powerful heating and ventilation plant would be located in the fifty or so floors below ground, and the building might well also have its own electricity generators, telephone exchange, and rubbish disposal equipment. Of course by the beginning of the next century we might have discovered entirely new kinds of energy which the building could use.

So there you are. Fantastic, isn't it? But then imagine what an impossible feat of engineering the Empire State building must have seemed all those years ago. And over 10,000 people work in shops and offices in the Empire State Building now.

Many engineers and scientists believe that two miles high buildings are not only feasible, but that they will come. But who can say? After all by the 21st century we might all be living under the sea, or in space stations orbiting the Earth . . . .

OUT OF THE GREEN MIST



Jo Grant saw the green glow from the windows of Dr. Who's laboratory as she stumbled up the path towards the U.N.I.T. buildings. Half of her mind was occupied with the guilt of being out so late in town on a day off. The other half was concerned over the fact that the gate-guard was lying, apparently unconscious, outside his lodge, and that everyone on the base seemed to be fast asleep, for she could neither hear nor see anyone moving. Bessie, Dr. Who's antique but powerful little yellow car, stood outside.

She sighed in relief as she approached the buildings and saw, through a window, the figure of the doctor standing in the green-lit laboratory. She couldn't be mistaken. That shock of greying hair, the flamboyant scarlet-lined cloak, and the frilled white shirt-front were as good as a uniform for the strange man, half towering scientific genius and half pixie, who was her boss in this oddest of all Government installations, U.N.I.T. or, to give it its full title, United Nations Intelligence Task-Force.

The 'intelligence' referred to, meant everything whatever outside the actual, visible and touchable things we all know about. The soldier in charge, Brigadier Lethbridge-Stewart, held the weird scientist who was nominally under his command, in nearly as much awe as did Jo Grant, who was the doctor's assistant, secretary, general dogsbody and bottle-washer.

The outer door was open.

Most unusual, thought Jo, and most dangerous. An establishment like U.N.I.T. headquarters, would be regarded by certain Great Powers not as friendly to Britain as they might be, as quite priceless as a source of information. Frown she might, but there was worse to come.

The door of the brigadier's room was open and he was sitting with his head on his outstretched arms, apparently fast asleep, while Captain Slade was slumped into a chair opposite him. A sergeant – it could only be the one they called Sparky was in front of the switchboard, actually snoring.

Jo's frown grew even deeper. Admittedly, it was almost midnight – she had been on the last bus from the station – but U.N.I.T. maintained a 24-hour seven-day week at all times.

Then she heard voices from the doctor's laboratory and she sighed in relief. The doctor had a scientific colleague with him and he was performing some weird experiment or other. It was possible, she though with a chuckle, that what he was doing might be the cause of the queer state of security in U.N.I.T. headquarters. Should she disturb him or should she go up to her quarters where the other girls on the staff were?

Her curiosity got the better of her and she knocked and entered the room.

Instantly, she was shocked to hear the roaring voice of her chief.

"Keep out, Jo! Keep out!" he bellowed. "You don't know . . . you must not . . . ."

Another voice interrupted him. It was a low, fluting voice that came from the cloud of pale-green vapour that hung, swirling, in a corner of the large, bench-filled room. Jo's flesh crawled. There was nobody there and yet the voice came to her ears from within the green cloud.

Not that she could have understood what the words were, but she heard the doctor laugh bitterly as he spoke, obviously replying to the voice.

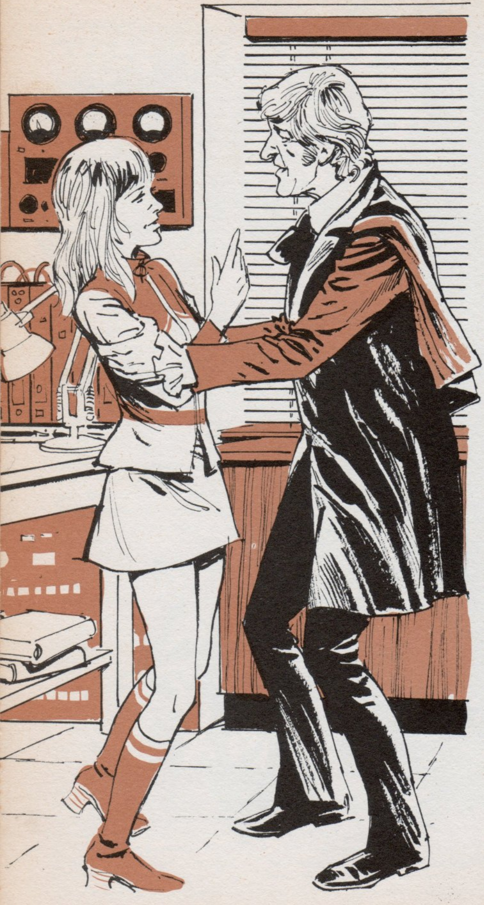
"As you say," he snarled, "she is young and innocent and she stays that way! What you plan for me is my affair and I take any risks. She is young while I am old, incredibly old by the standards of this race of humans. Besides, she is weak and vulnerable while I, as far as I have known over the centuries, I am potentially immortal. At least, no being or any object, in any of the countless universes I have visited in the whole of Space and Time, has ever been able to harm me. Jo, for the sake of your life and your sanity, clear out and stay out."

"Doctor, you're in danger!" the girl cried. "Everybody's asleep or unconscious. No guard at the gate and the brigadier and his staff all asleep. What on earth is going on here, Doctor?"

He gave a cracked sort of laugh. "What on Earth – ? Oh, that's good; that's very good. If only it *was* on Earth!"

"Now you're burbling," she said severely, but still keeping her eyes away from the green glow. It had not moved except for the swirling. "You've been working too hard. You should get to bed. I'll wake them up outside if I have to sound the general alarm to do it."

Summoning up all her courage, she darted towards the doctor and, with her shoulder, pushed him to one side. She had noticed that, during it all, he had stood rigid as



though held in a vice. Now, he gave a shrill screech and dropped to his knees. A low sound came from the green cloud and it began to writhe more furiously. Then, she watched unbelieving, the greenness gathered itself into a long, rolling cloud and, like smoke being sucked into an invisible hole, it vanished completely. On the floor, almost beside himself with fury, Dr. Who raged and shouted at her.

"I suppose you're not really to blame, Jo," he said ten minutes later, as he sipped the hot coffee she had made. "How were you to know when even I, who rigged up the gadget, didn't know what it might do. It seems that with that uncanny luck which seems to follow me round, by one chance in millions I had achieved a point in this Space/Time world which, at that instant, happened to coincide with similar conditions in this other alien universe existing invisibly, side by side with ours. Well, it was fate. It just had to be, in the scheme of things, that you had to crash in, quite innocently, and wreck a condition that may never occur again in untold millions of years. If only you'd been five minutes later, child!"

"But," she protested, "what *is* going on? What was that green smoke and the voice . . . *was* there a voice coming out of that smoke . . . I heard *your* voice and another . . . ."

"It wanted to take me, along with *you*," smiled the doctor, "but I told it you were too young and not yet ready for it."

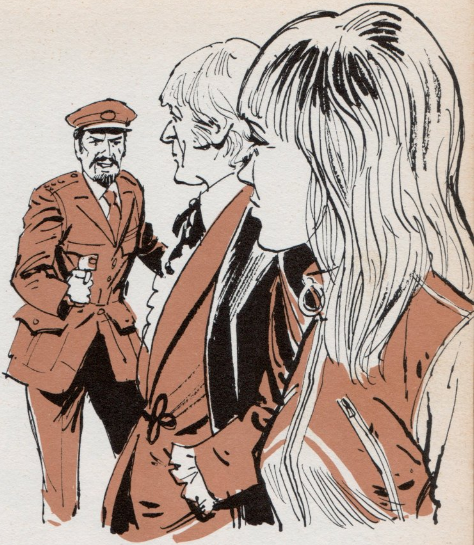
"Ready for what, for heaven's sake?" she asked in exasperation.

He grinned impishly. "You know, Jo, I don't quite know. It wouldn't give me any facts or details. It seems that here on our poor young and backward Earth, we are nitwitted idiots, not fit to know about what it terms the 'wonders of existence', and he was going to favour me with a glimpse, sort of preview, you know. There was talk of infinite dimensions, eternities of Time, universes crowding in upon universes, life in every possible infinite species growing on every particle of matter – everywhere crammed with Life and yet more Life. A scientist's dream." He sighed.

"It's the sort of dream I used to have when I was young," and he gave a twisted smile. "Yes Jo, even I was young once, so long, long ago."

"To be able to communicate . . . talk . . . with this being," said Jo shrewdly, "you must have had some sort of apparatus, a machine, or *something*. You haven't had any chance to alter anything since I came in, so it must be adjusted to the same conditions as before."

Dr. Who's eyes gleamed. "Jo," he breathed, "you're the genius here. Why didn't I realise that? You're absolutely correct, dear child. Now, let me see." He stared round him at the multitude of apparatus that lined his laboratory, and started as the door creaked open. "Not now, Brigadier, if you please," he snapped to the man in khaki with the red staff band round his cap. "Can't you see we're altogether too busy to bother with matters of security? There are worlds and universes at stake here; there are ideas and conceptions you would never even dream of."



"Doctor!" screamed Jo. "Look out, he's got a gun! It isn't the brigadier. It's . . . oh, my goodness! It's the *Master*!

"Eh?" snapped Dr. Who. "How can it be the Master, child? Last I heard of him he was supposed to be up to some sort of skulduggery on the far side of Pluto. He *can't* be here. Besides, that's Lethbridge-Stewart's uniform! By the Seven Pleiades, it is the Master! You scoundrel, what are you doing here? Drop that gun, you slimy reptile!"

The bearded dark man in the brigadier's uniform, leered at them both. "I heard it all. Sounded most impressive, I must say. This apparatus of yours, my dear doctor, I must have it. Think of the infinite opportunities offered to me and my plans with this marvel. You mentioned infinite universes and infinite dimensions . . . my mind absolutely drools, Doctor." Then his tones changed and he jabbed the gun forward. "Come on now, old fool, where is this thing of yours? Hurry, hurry, before those cattle out there wake up. My lads gave them all a good whiff of sleeping gas, but it won't last for ever."

"So it was you, you foul creature," Jo spat out. "Doctor, you'll have to do what he says. You may think yourself immortal but the bullet from that pistol seems pretty deadly to me."

"Feeble mortals!" jeered the Master, and his gun barked.

Like a rabbit before a serpent Jo watched and saw the bullet appear out of nowhere, six inches from Dr. Who's head. It slowed with a puff of flame as its inertia of flight was transformed into heat, then stopped and tinkled to the floor.

From the same corner as before a faint green glow began to form and a voice, thin and distant, as though coming from countless leagues of space, began to sound in their brains; Jo knew it did not come through her ears.

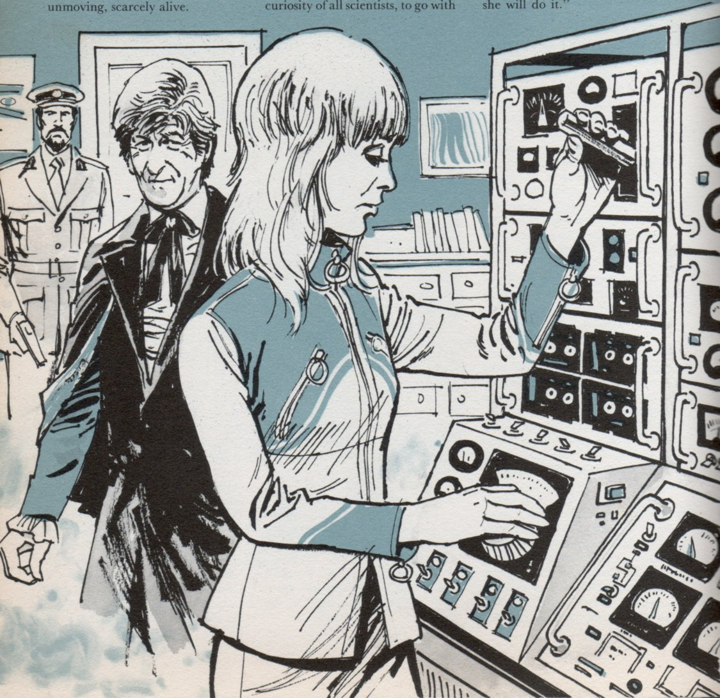
"No," the voice said, a voice that sounded as though it came from machinery and not from warm lungs and throat. "That other who was here before me, was an evil entity, as I perceive the mind of this human to be. I will hold it still while we converse. That other one, of my species, it too has been dealt with for tampering with the inter-dimensional flux. It would have taken you through the Portal, and your very mind would have been destroyed by what he showed you. For, even in the multi-dimensional super-universe, which is the Whole of Being, there is contrast. Behind delight and wonder there is evil and cruelty, behind miracle there is always failure. Only when all the races of Life move out of the multi-dimensional sphere into the Mystery that still lies Beyond, of which even our highest minds have no smallest notion, will the Absolute be reached, that state wherein Relativity fades and there is no longer comparison and polarity."

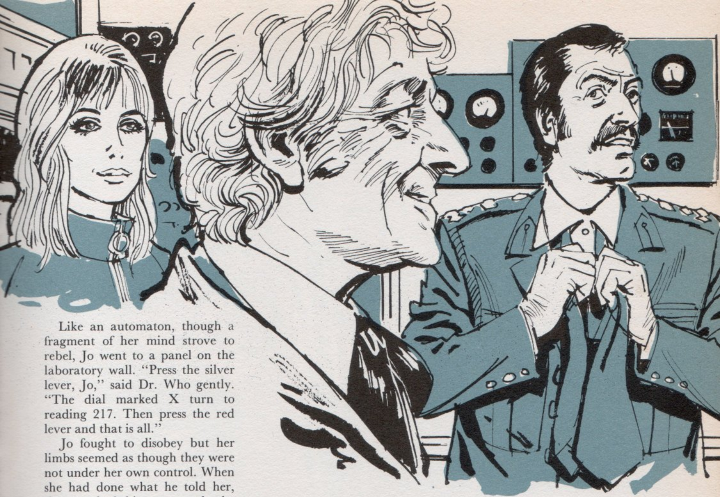
Dr. Who stared in mute wonder at the green, writhing mist. The Master, gun still held up in nerveless hand, his dark, bearded face twisted into a mask of helpless fury, stood like a stone statue, unmoving, scarcely alive.

The doctor spoke hesitatingly to the green cloud as though it was a person. "When contact was disturbed by the coming of the smaller one of my species, she whom I call Jo, I was about to establish contact again. That other, of whom you spoke, and who spoke to me before, you say it was evil, not good, twisted, bad . . . . How am I to know whether *you* now speak truth or evil, whether you are evil also, or whether all who dwell in the mysterious Otherwhere you inhabit are not all evil, as we know it? I am consumed with a most fierce curiosity, the curiosity of all scientists, to go with you wherever you would take me. But . . . how can I know you think truth?"

"I think you know, Human," came the whispering voice. "Look into your mind. Try to rid that mind of fear and prejudice. You will know!"

Dr. Who passed a hand across his moist face and the green mist was no longer alien and fearful. From it shone an invisible beam of sanity and benignity that warmed his mind, so cold and terrified before. "What do I do? My apparatus is here and the girl will operate it. Speak to her mind and she will do it."





Like an automaton, though a fragment of her mind strove to rebel, Jo went to a panel on the laboratory wall. "Press the silver lever, Jo," said Dr. Who gently. "The dial marked X turn to reading 217. Then press the red lever and that is all."

Jo fought to disobey but her limbs seemed as though they were not under her own control. When she had done what he told her, she watched him approach the green cloud and saw the outline of his body grow dimmer and dimmer, as he vanished with the green mist, as though the corner was empty. There was the *twang!* as of a gigantic harpstring and she fell to the floor in a dead faint.

Swathed in his greatcoat over his underwear, Brigadier Lethbridge-Stewart stormed into the laboratory. He glared at the stiff, motionless figure of the Master, clad in his own uniform, and he barked out orders. Two men behind him grabbed the interloper and, handling him like a marble statue, they backed into the corridor, followed by a redfaced brigadier.

Five minutes later, as Jo was rubbing her eyes, he came back, hastily buttoning up his battledress blouse. "Jo," he said sharply. "What *is* all this? Headquarters is in total confusion. My chaps are rounding up the riff-raff this blackguard brought with him. Where is the doctor?"

"I wish I knew, Brigadier." Jo stared puzzled at the corner, now empty, where the green clouds had hovered. "He's gone . . . he was taken . . . oh, I don't know. You know how he goes on . . . dimensions . . . multi-universes . . . relativity . . . galaxies . . . my head often aches with it all." She picked up her coffee cup and lifted it to her lips. It was still warm. A voice sounded in their ears and they both jumped as a slight popping noise came with the voice.

"You're still here?" said the figure of the doctor, standing in the corner which had been empty the moment before. Now there was no hint of the green mist and on the doctor's face was the look of a man who has just wakened from a dream, a long, long dream.

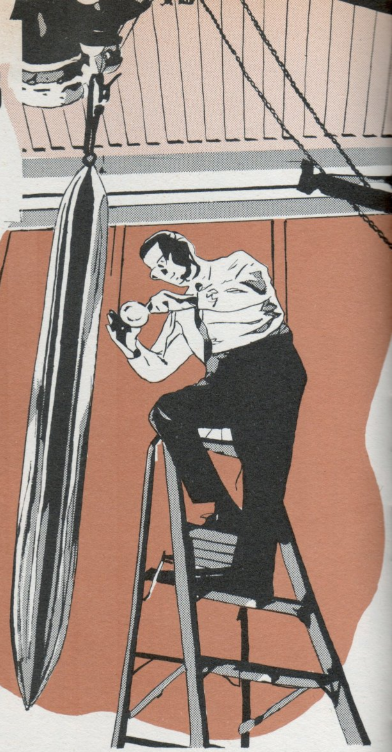
He wandered to the table and lifted his coffee cup. "It's still warm!" he said in stupefaction. "Five minutes . . . but I would swear I've been absent for years and years. What foolish notions we do have about Time."

Going to the wash-basin he stared at his face in the mirror. Then he stared at Jo and at Lethbridge-Stewart. "By the Great Nebula in Andromeda!" he chuckled. "It's just like that fellow told me . . . there's nothing absolute except outside the *Cosmos*. There's a thought for you! *Outside* the Cosmos, which is All there Is of Everything. If only one could grasp . . . ."

Jo interrupted his musings. "You've been . . . what was it like, Doctor? What did you see? Were there worlds like this one? What were the people you saw there like?"

He stared at her in a daze. "It's all going!" he said wildly, clutching his forehead. "Like summer mist; like a dream, it's fading . . . but it was wonderful, I can remember that. More wonderful than anything anyone could ever imagine. What a truly wonderful future Mankind has to look forward to."

Tomorrow's history



In some three thousand libraries throughout the world there is a closely guarded *Book of Records* written in special ink on time-proof paper which records everything which was put in the Time Capsule in New York almost ten years ago.

THE TIME CAPSULE

Some twenty-nine nations decided to make and bury a special cylinder which would contain all the information that would show people who are living thousands of years in the future how we lived in the twentieth century today.

Made from a special stainless steel alloy, the cigar-shaped capsule is almost eight feet long and weighs some three hundred pounds. The contents are protected with waterproof materials and a special gas inside the capsule will prevent age destroying the contents.

THE 20th CENTURY WORLD

A group of the world's leading statesmen, artists, writers and scientists got together to decide what to put in the capsule.

As a result, films were taken of very ordinary everyday objects and scenes, microfilms were made of the world's leading scientific discoveries such as the atomic power stations, and photographs were taken of famous landmarks.

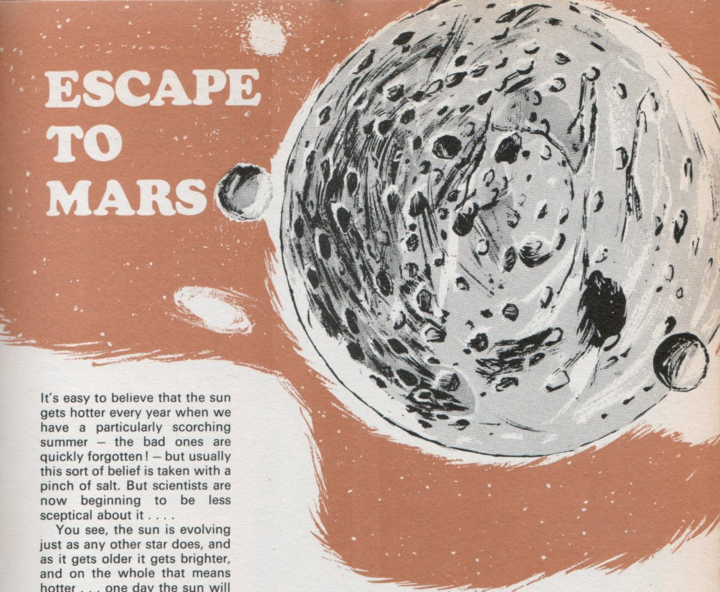
Books and magazines appeared on microfilm in most of the known languages of the world, and specimens of man-made metals, plastics and fibres were also included.

In fact, everything that the committee felt would give a true picture of life in the twentieth century was included in the cylinder before it was finally sealed and buried some fifty feet under Flushing Meadow, where the New York World's Fair took place in 1964.

Protected from possible damage from fire, earthquake or flood and with the story of what the capsule contains on a pillar above it, the time capsule awaits its place in history.

Will its opening some five thousand years hence cause as much excitement as the finding of the Dead Sea Scrolls or the opening of Tutankhamun's tomb? . . . only time and history will tell!

ESCAPE TO MARS



It's easy to believe that the sun gets hotter every year when we have a particularly scorching summer – the bad ones are quickly forgotten! – but usually this sort of belief is taken with a pinch of salt. But scientists are now beginning to be less sceptical about it . . . .

You see, the sun is evolving just as any other star does, and as it gets older it gets brighter, and on the whole that means hotter . . . one day the sun will burn itself out and it'll take the earth with it! But before you panic, and panic won't do you any good anyway, you'd better know all the facts. Its taken 4·5 aeons for the sun to get forty per cent hotter, which is a long, long time when you think that one aeon equals a thousand million years. So, at that rate it's going to be a long time before the sun destroys the earth, and certainly we won't be around to see it!

But the more disturbing fact is that long before the earth is destroyed it's going to be far too hot to live on, because the sun will completely dominate the solar system with its intense heat. So what's the alternative to being fried alive?

Well at the moment the only alternative would seem to be to move out or rather off, lock, stock and barrel. The whole of our world's population would have to find another planet . . . a removal man's nightmare!. As the earth's atmosphere changes to steam, and the planet becomes a dead, bright-looking object, very similar to Venus today, earthlings will be moving further out, to Mars perhaps, where it will be considerably cooler.

According to scientists, as the earth hots up Mars will be evolving into a perfect second home – all being well, that is. But at its closest, Mars is thirty-five million miles away, and sometimes it's as far as sixty million miles away! Still they should have invented some incredible space travel equipment by then.

So, in two and a half aeons time, earthlings will have to look out: they'll only have one aeon left in which to plan their escape route to Mars. And from then, who knows . . . . It could be that there won't be any men left on earth in four and a half thousand million years anyway, or they might even be constructing their own planets way out in space, or somebody else might have moved onto Mars and earthlings may have to look even further afield, nomads in space. Now, that's a thought, isn't it?

PIONEERS of SPACE

When would you say the era of space travel really began – the 1960s, maybe even the 1950s? Those were the years when flight in space was first successfully accomplished, but the idea of space travel had been the dream of brilliant and dedicated scientists many years before . . .

KONSTANTIN TSIOLKOVSKY

Konstantin Tsiolkovsky wrote a paper which he called *Investigation of Cosmic Space by Reactive Machines*, in which he discussed the use of multi-staged, liquid fuel rockets (reactive machines), interplanetary travel, life-support systems in space, and many technical details such as the velocity needed for a vehicle to escape from Earth's atmosphere.

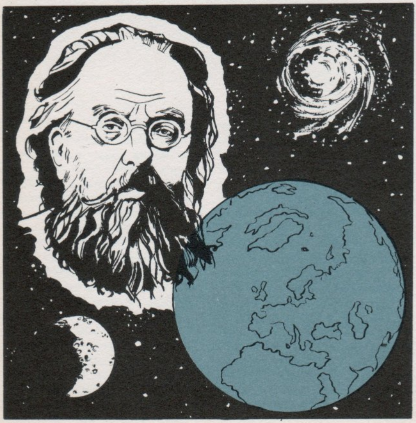
He finished writing the paper in 1898.

And Tsiolkovsky was working entirely alone – as no one would believe that his ideas were possible, let alone practical. So he did all his research himself, and the amazing thing is that modern scientists have checked his facts and figures carefully, and they have found that he was consistently correct.

Tsiolkovsky was a brilliant scientist, and he worked on many projects, including the design of an airship, which he never saw built. Again scientists have looked at his design, and have found that his airship would have been a perfectly airworthy machine.

Tsiolkovsky's lifetime dream was that someday man would travel in space, but alas he did not live to see that dream come true. But this Russian scientist, a woodcutter's son who devoted his life to the study of space flight, takes a very important place in the history books today.

He will always be remembered as a brilliant man, with a fantastic imagination backed up by years of research, who played a very important part in the dawn of the space age.



DR ROBERT H GODDARD

Robert Goddard's greatest aim was to design a vehicle which could travel to Mars. His work on this project led him to become the inventor of the world's first practical liquid-fuelled rocket.

Goddard was born in America in 1882, and at the beginning of this century he did a lot of work on his theories of space travel, and wrote pages of notes and diagrams. Still no one believed that space travel could be possible, and Goddard had an article rejected by a scientific magazine.

But he wasn't discouraged, not even some years later when he realised that many of his calculations had been incorrect. He simply tore up his notes and started to work again.

In 1909 Goddard collated all his work on rocketry, and became a professor at an American university. By now he was flight-testing small, powder-burning rockets, which could reach a height of about 500 feet.

At last, in 1917, he was granted a 5,000 dollar award to continue his research, but for a while he was prevented from doing so by the First World War. After the war he went back to work on his theories of space flight, and began to develop a liquid fuel as a propellant.

In 1919 Goddard published his famous paper, *A Method of Attaining Extreme Altitudes*, which included a few paragraphs on the amazing idea of landing a rocket on the Moon. The paper was a news story immediately – but not quite in the way Goddard could have hoped . . . . The papers ran stories of yet another mad scientist with some 'crackpot' ideas!

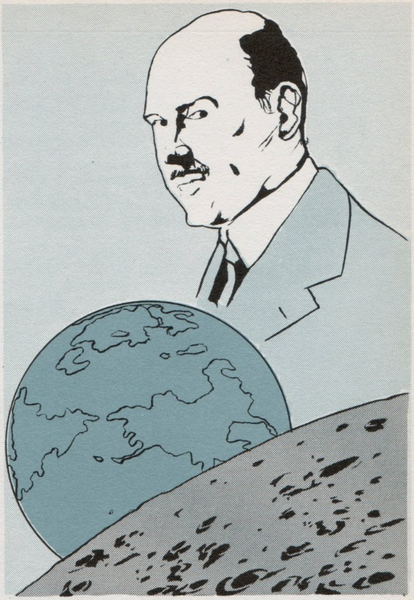
Goddard could not be discouraged, for his research was so important and exciting to him, but he now began to work in secrecy. And by 1926 he was ready to test the world's first liquid-fuelled rocket.

Blast off was in the quiet meadows of a farm, a far cry from the launching ceremonies of today, watched by the world. And the launch was a success. Goddard's rocket flew at about 60 miles an hour, straight up for about 184 feet.

This was the first flight of a liquid-propelled rocket.

Encouraged by his success, Goddard continued his experiments, and at last the world began to take notice. The Guggenheim Foundation began to support his work, and another big step forward came in 1935. One of his rockets rose to 7,200 feet, travelling at 550 miles an hour.

Alas, Dr. Robert H. Goddard too was to die before he could see the era of space travel, but scientists the world over remember him constantly, as many of his basic designs go into the rockets launched today.



HERMANN OBERTH

The third great pioneer of the space age is the one who did live to see his dream become a reality. He is Hermann Oberth, who was born in Rumania in 1894, and did most of his work in Germany. His particular fascination as a young boy was travel to the Moon, and from his early childhood he crammed notebooks full of ideas and designs for a Moonship.

Hermann Oberth went to the Medical School of the University of Munich in 1913, to study to be a doctor. But his first love was always the study of space, and he spent many hours studying books on mathematics and astronomy.

But then World War One broke out and he had to join the army. After the war he turned to full-time study of mathematics and physics, and began at last to realise his great ambitions to design rockets. But it was hard work, and he had a wife and family to support.

He designed several rockets, but though they were brilliant designs, and perfectly practical, he was never able to test any of them, due to lack of money, and also lack of interest from the ever-sceptical public.

In 1923 Oberth's first book was published, called, *The Rocket Into Interplanetary Space*, and at last the public became interested. In fact, people all over the world became eager to hear more of Oberth's ideas. The book discussed such subjects as weightlessness in space, the use of liquid fuel, communications satellites, and many others, and these theories and calculations have in fact formed a working basis for the design of modern spacecraft.

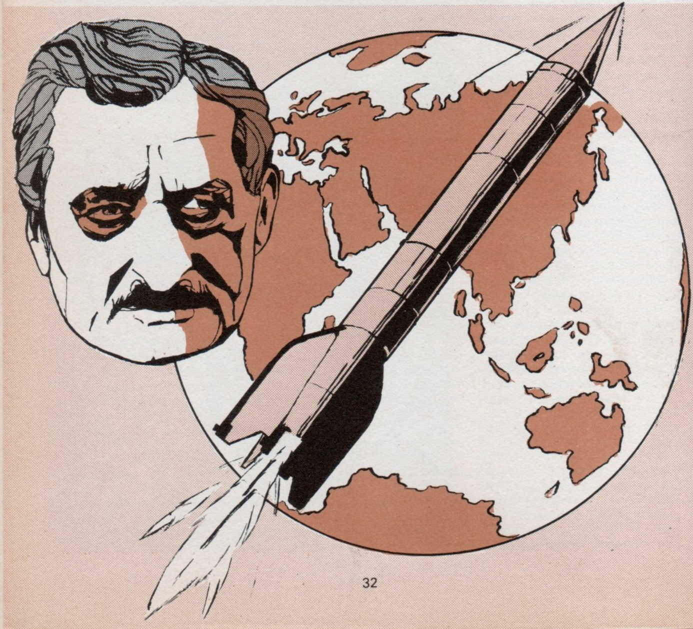
Though Hermann Oberth was now well on the road to success, he was still thwarted by lack of funds, and he had to devote much time to teaching to raise enough money to keep himself and his family. Then, at last, came the day when Hermann Oberth could test a rocket engine he had designed, and he had the joy of seeing it run successfully for 90 seconds. He was assisted at that time by the now world-famous rocket engineer, Wernher von Braun, who had been one of his pupils.

In World War II, Oberth designed the famous V-2 rocket, a rocket of exceptionally high performance and sophisticated design. Though the V-2 loses much of its appeal when you realise that it was to be used solely as a weapon of destruction, nevertheless it showed that rocket propulsion was a practical means of travel in space.

Hermann Oberth has lived to see his dream come true – and for some years he worked with Dr. Wernher von Braun in America. He retired in 1958, with a lifetime's brilliant career behind him.

The rest of the story is well known. Man has achieved space flight, and he has landed on the Moon. Only the future now can tell just how far into space he will eventually be able to travel, and at what phenomenal speeds his rockets will carry him.

But the era of space might never have dawned had it not been for the brilliance, dedication and sheer hard work of those pioneers of space.



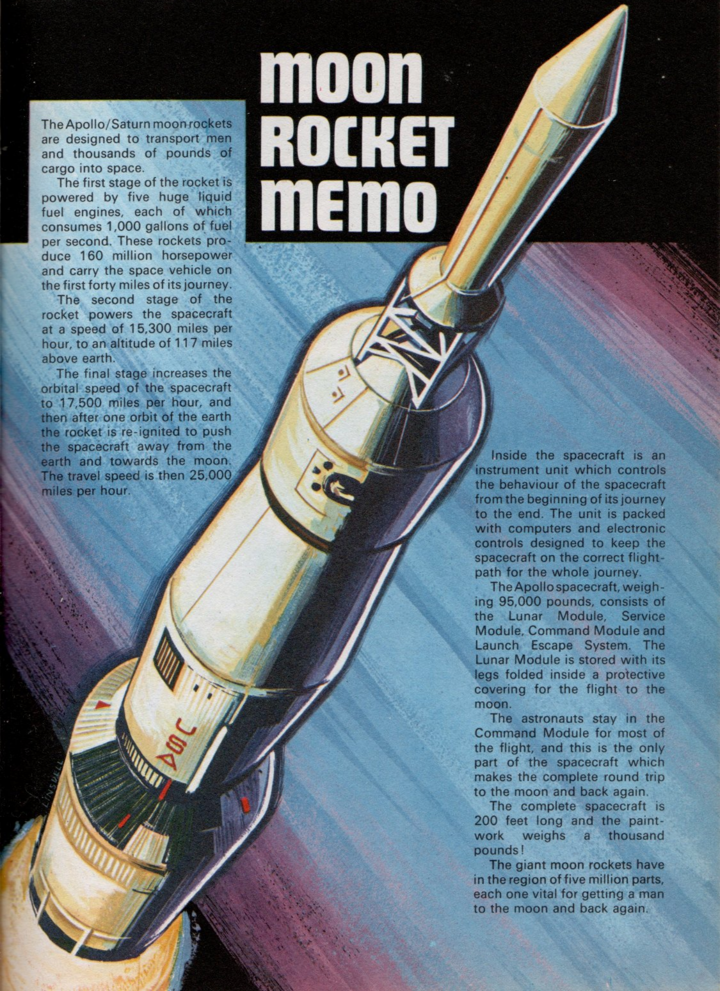
MOON ROCKET MEMO

The Apollo/Saturn moon rockets are designed to transport men and thousands of pounds of cargo into space.

The first stage of the rocket is powered by five huge liquid fuel engines, each of which consumes 1,000 gallons of fuel per second. These rockets produce 160 million horsepower and carry the space vehicle on the first forty miles of its journey.

The second stage of the rocket powers the spacecraft at a speed of 15,300 miles per hour, to an altitude of 117 miles above earth.

The final stage increases the orbital speed of the spacecraft to 17,500 miles per hour, and then after one orbit of the earth the rocket is re-ignited to push the spacecraft away from the earth and towards the moon. The travel speed is then 25,000 miles per hour.



Inside the spacecraft is an instrument unit which controls the behaviour of the spacecraft from the beginning of its journey to the end. The unit is packed with computers and electronic controls designed to keep the spacecraft on the correct flight-path for the whole journey.

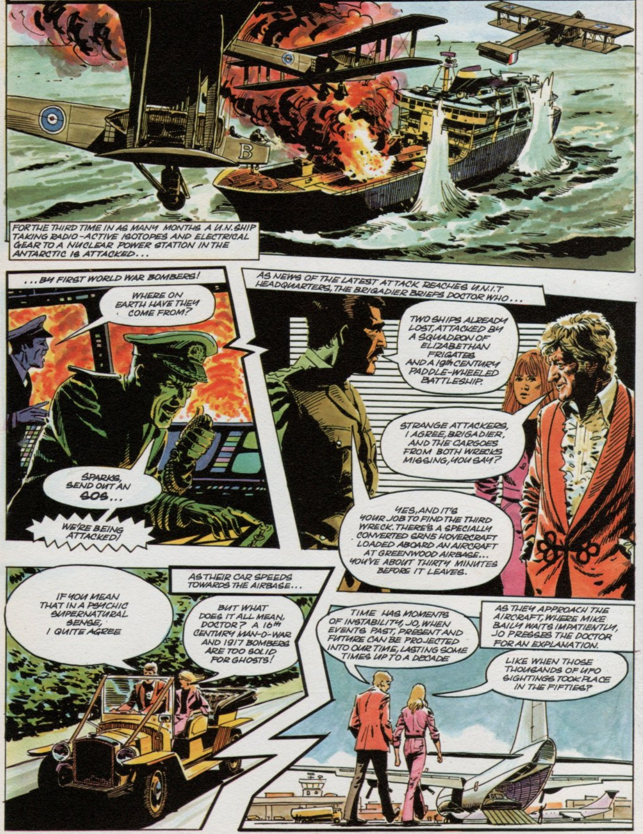
The Apollo spacecraft, weighing 95,000 pounds, consists of the Lunar Module, Service Module, Command Module and Launch Escape System. The Lunar Module is stored with its legs folded inside a protective covering for the flight to the moon.

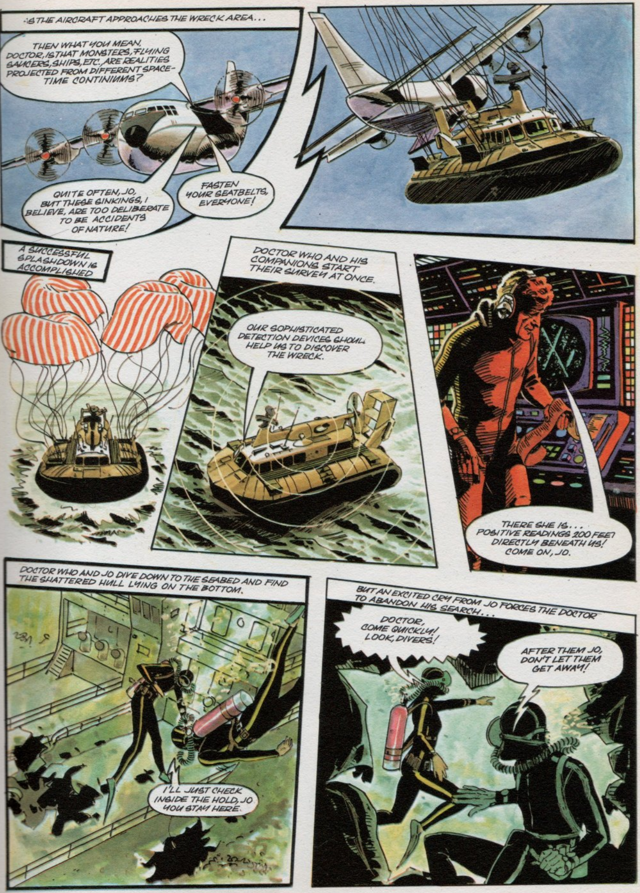
The astronauts stay in the Command Module for most of the flight, and this is the only part of the spacecraft which makes the complete round trip to the moon and back again.

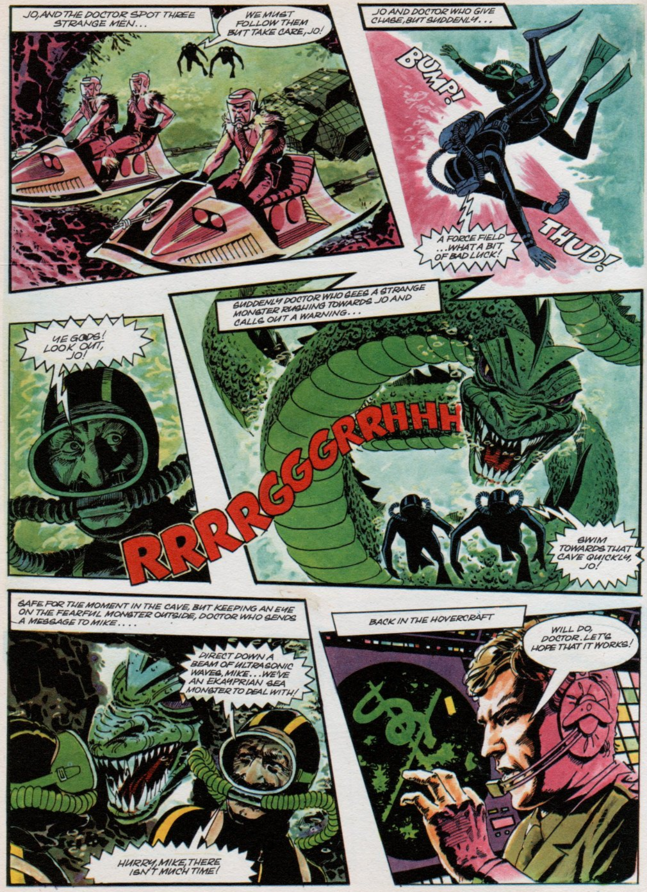
The complete spacecraft is 200 feet long and the paintwork weighs a thousand pounds!

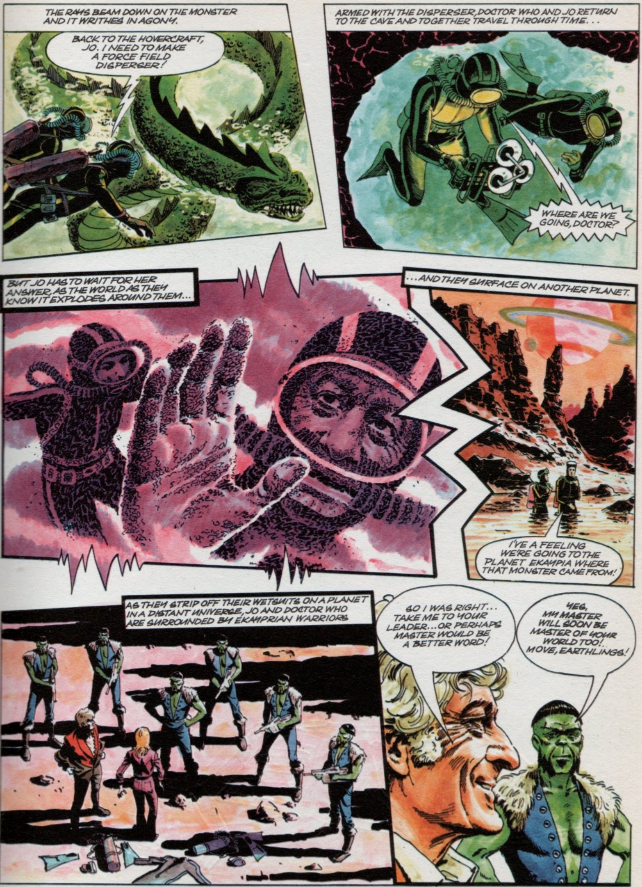
The giant moon rockets have in the region of five million parts, each one vital for getting a man to the moon and back again.

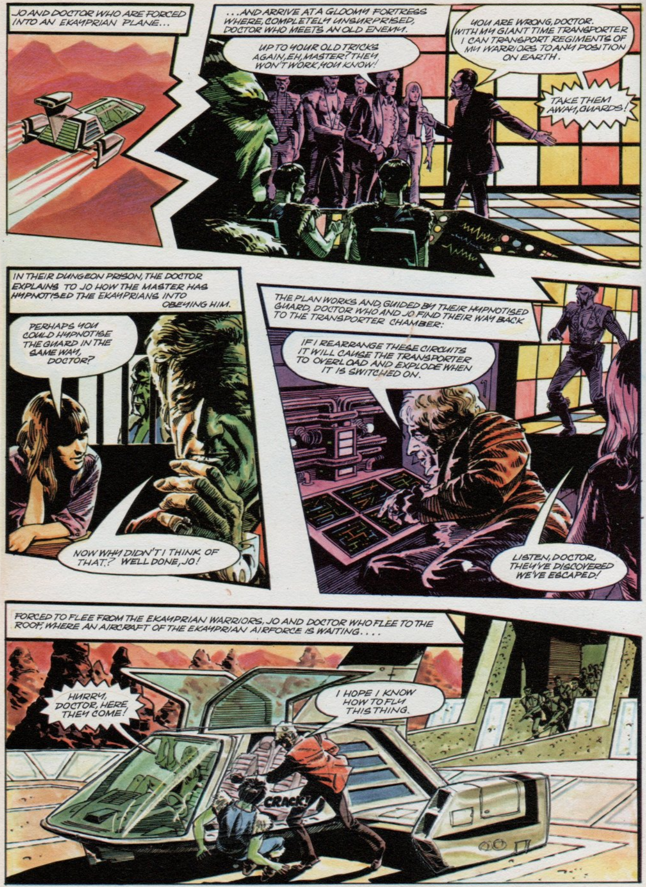
THE TIME THIEF

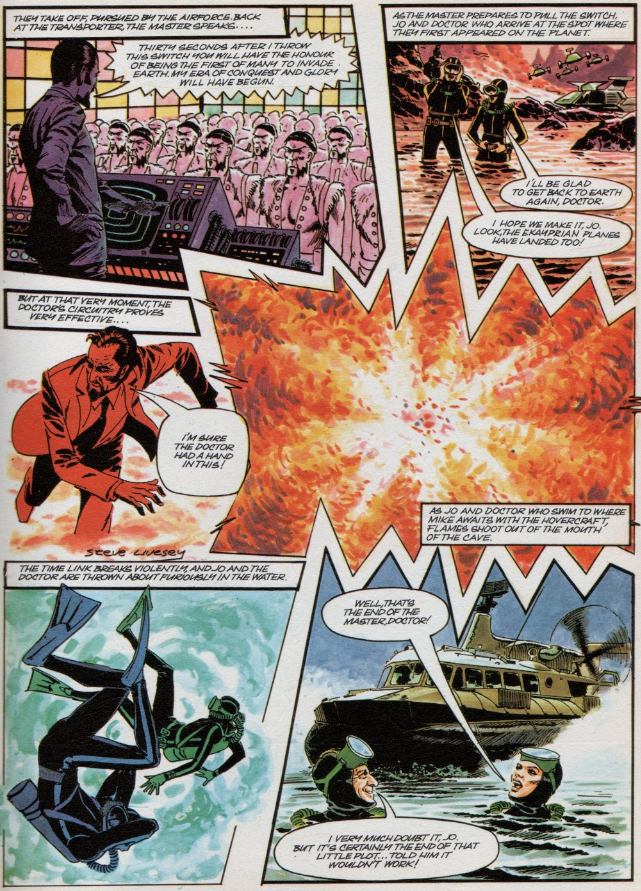

FOR THE THIRD TIME IN AS MANY MONTHS A U.N. SHIP TAKING RADIO-ACTIVE ISOTOPES AND ELECTRICAL GEAR TO A NUCLEAR POWER STATION IN THE ANTARCTIC IS ATTACKED...
B
...BY FIRST WORLD WAR BOMBERS!
WHERE ON EARTH HAVE THEY COME FROM?
SPARKS, SEND OUT AN SOS...
WE'RE BEING ATTACKED!
AS NEWS OF THE LATEST ATTACK REACHES U.N.I.T HEADQUARTERS, THE BRIGADIER BRIEFS DOCTOR WHO...
TWO SHIPS ALREADY LOST, ATTACKED BY A SQUADRON OF ELIZABETHAN FRIGATES AND A 19th CENTURY PADDLE-WHEELED BATTLESHIP.
STRANGE ATTACKERS, I AGREE, BRIGADIER, AND THE CARGOES FROM BOTH WRECKS MISSING, YOU SAY?
YES, AND IT'S YOUR JOB TO FIND THE THIRD WRECK. THERE'S A SPECIALLY CONVERTED SRN5 HOVERCRAFT LOADED ABOARD AN AIRCRAFT AT GREENWOOD AIRBASE... YOU'VE ABOUT THIRTY MINUTES BEFORE IT LEAVES.
AS THEIR CAR SPEEDS TOWARDS THE AIRBASE...
BUT WHAT DOES IT ALL MEAN, DOCTOR? A 16th CENTURY MAN-O-WAR AND 1917 BOMBERS ARE TOO SOLID FOR GHOSTS!
IF YOU MEAN THAT IN A PSYCHIC SUPERNATURAL SENSE, I QUITE AGREE
AS THEY APPROACH THE AIRCRAFT, WHERE MIKE BAILY WAITS IMPATIENTLY, JO PRESSES THE DOCTOR FOR AN EXPLANATION.
TIME HAS MOMENTS OF INSTABILITY, JO, WHEN EVENTS PAST, PRESENT AND FUTURE CAN BE PROJECTED INTO OUR TIME, LASTING SOME TIMES UP TO A DECADE
LIKE WHEN THOSE THOUSANDS OF UFO SIGHTINGS TOOK PLACE IN THE FIFTIES?


AS THE AIRCRAFT APPROACHES THE WRECK AREA...
THEN WHAT YOU MEAN, DOCTOR, IS THAT MONSTERS, FLYING SAUCERS, SHIPS, ETC. ARE REALITIES PROJECTED FROM DIFFERENT SPACE-TIME CONTINUUMS?
QUITE OFTEN, JO, BUT THESE SINKINGS, I BELIEVE, ARE TOO DELIBERATE TO BE ACCIDENTS OF NATURE!
FASTEN YOUR SEATBELTS, EVERYONE!
A SUCCESSFUL SPLASHDOWN IS ACCOMPLISHED
DOCTOR WHO AND HIS COMPANIONS START THEIR SURVEY AT ONCE.
OUR SOPHISTICATED DETECTION DEVICES SHOUL HELP US TO DISCOVER THE WRECK.
THERE SHE IS... POSITIVE READINGS 200 FEET DIRECTLY BENEATH US! COME ON, JO.
DOCTOR WHO AND JO DIVE DOWN TO THE SEABED AND FIND THE SHATTERED HULL LYING ON THE BOTTOM.
I'LL JUST CHECK INSIDE THE HOLD, JO YOU STAY HERE.
BUT AN EXCITED CRY FROM JO FORCES THE DOCTOR TO ABANDON HIS SEARCH...
DOCTOR, COME QUICKLY! LOOK, DIVERS!
AFTER THEM JO, DON'T LET THEM GET AWAY!


JO, AND THE DOCTOR SPOT THREE STRANGE MEN...
WE MUST FOLLOW THEM BUT TAKE CARE, JO!
JO AND DOCTOR WHO GIVE CHASE, BUT SUDDENLY...
BUMP!
A FORCE FIELD ...WHAT A BIT OF BAD LUCK!
THUD!
SUDDENLY DOCTOR WHO SEES A STRANGE MONSTER RUSHING TOWARDS JO AND CALLS OUT A WARNING...
YE GODS! LOOK OUT, JO!
RRRRGGGGRRHHH
SWIM TOWARDS THAT CAVE QUICKLY, JO!
SAFE FOR THE MOMENT IN THE CAVE, BUT KEEPING AN EYE ON THE FEARFUL MONSTER OUTSIDE, DOCTOR WHO SENDS A MESSAGE TO MIKE....
DIRECT DOWN A BEAM OF ULTRASONIC WAVES, MIKE... WE'VE AN EKAYPRIAN SEA MONSTER TO DEAL WITH!
HURRY, MIKE, THERE ISN'T MUCH TIME!
BACK IN THE HOVERCRAFT
WILL DO, DOCTOR. LET'S HOPE THAT IT WORKS!


THE RAYS BEAM DOWN ON THE MONSTER AND IT WRITHES IN AGONY.
BACK TO THE HOVERCRAFT, JO. I NEED TO MAKE A FORCE FIELD DISPERSER!
ARMED WITH THE DISPERSER, DOCTOR WHO AND JO RETURN TO THE CAVE AND TOGETHER TRAVEL THROUGH TIME...
WHERE ARE WE GOING, DOCTOR?
BUT JO HAS TO WAIT FOR HER ANSWER, AS THE WORLD AS THEY KNOW IT EXPLODES AROUND THEM...
...AND THEY SURFACE ON ANOTHER PLANET.
I'VE A FEELING WE'RE GOING TO THE PLANET EKAYPIA WHERE THAT MONSTER CAME FROM!
AS THEY STRIP OFF THEIR WETSUITS ON A PLANET IN A DISTANT UNIVERSE, JO AND DOCTOR WHO ARE SURROUNDED BY EKAYPRIAN WARRIORS
SO I WAS RIGHT... TAKE ME TO YOUR LEADER... OR PERHAPS MASTER WOULD BE A BETTER WORD!
YES, MY MASTER WILL SOON BE MASTER OF YOUR WORLD TOO! MOVE, EARTHLINGS!

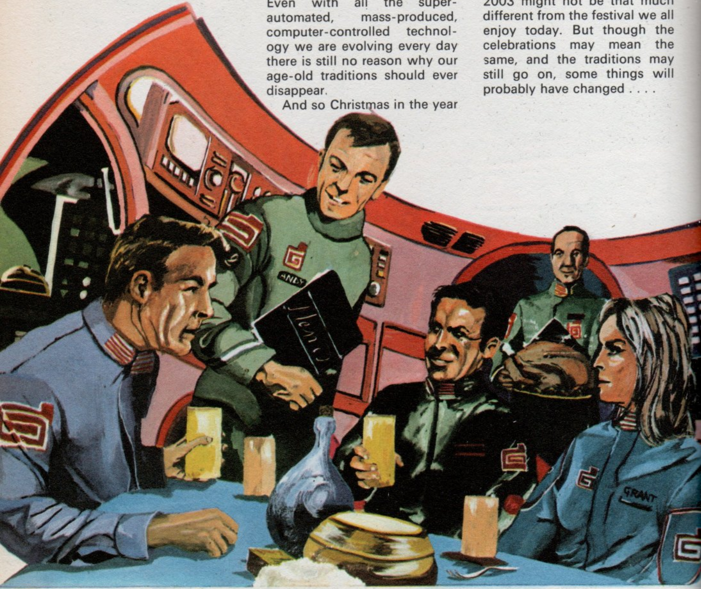

JO AND DOCTOR WHO ARE FORCED INTO AN EKAYPRIAN PLANE...
...AND ARRIVE AT A GLOOMY FORTRESS WHERE, COMPLETELY UNSURPRISED, DOCTOR WHO MEETS AN OLD ENEMY.
UP TO YOUR OLD TRICKS AGAIN, EH, MASTER? THEY WON'T WORK, YOU KNOW!
YOU ARE WRONG, DOCTOR. WITH MY GIANT TIME TRANSPORTER I CAN TRANSPORT REGIMENTS OF MY WARRIORS TO ANY POSITION ON EARTH.
TAKE THEM AWAY, GUARDS!
IN THEIR DUNGEON PRISON, THE DOCTOR EXPLAINS TO JO HOW THE MASTER HAS HYPNOTISED THE EKAYPRIANS INTO OBEYING HIM.
PERHAPS YOU COULD HYPNOTISE THE GUARD IN THE SAME WAY, DOCTOR?
NOW WHY DIDN'T I THINK OF THAT? WELL DONE, JO!
THE PLAN WORKS AND, GUIDED BY THEIR HYPNOTISED GUARD, DOCTOR WHO AND JO FIND THEIR WAY BACK TO THE TRANSPORTER CHAMBER:
IF I REARRANGE THESE CIRCUITS IT WILL CAUSE THE TRANSPORTER TO OVERLOAD AND EXPLODE WHEN IT IS SWITCHED ON.
LISTEN, DOCTOR, THEY'VE DISCOVERED WE'VE ESCAPED!
FORCED TO FLEE FROM THE EKAYPRIAN WARRIORS, JO AND DOCTOR WHO FLEE TO THE ROOF, WHERE AN AIRCRAFT OF THE EKAYPRIAN AIRFORCE IS WAITING....
HURRY, DOCTOR, HERE THEY COME!
I HOPE I KNOW HOW TO FLY THIS THING.
CRACK!


THEY TAKE OFF, PURSUED BY THE AIRFORCE. BACK AT THE TRANSPORTER, THE MASTER SPEAKS....
THIRTY SECONDS AFTER I THROW THIS SWITCH YOU WILL HAVE THE HONOUR OF BEING THE FIRST OF MANY TO INVADE EARTH. MY ERA OF CONQUEST AND GLORY WILL HAVE BEGUN.
AS THE MASTER PREPARES TO PULL THE SWITCH, JO AND DOCTOR WHO ARRIVE AT THE SPOT WHERE THEY FIRST APPEARED ON THE PLANET.
I'LL BE GLAD TO GET BACK TO EARTH AGAIN, DOCTOR.
I HOPE WE MAKE IT, JO. LOOK, THE EKAYPRIAN PLANES HAVE LANDED TOO!
BUT AT THAT VERY MOMENT, THE DOCTOR'S CIRCUITRY PROVES VERY EFFECTIVE....
I'M SURE THE DOCTOR HAD A HAND IN THIS!
Steve Livesey
AS JO AND DOCTOR WHO SWIM TO WHERE MIKE AWAITS WITH THE HOVERCRAFT, FLAMES SHOOT OUT OF THE MOUTH OF THE CAVE.
THE TIME LINK BREAKS VIOLENTLY, AND JO AND THE DOCTOR ARE THROWN ABOUT FURIOUSLY IN THE WATER.
WELL, THAT'S THE END OF THE MASTER, DOCTOR!
I VERY MUCH DOUBT IT, JO. BUT IT'S CERTAINLY THE END OF THAT LITTLE PLOT... TOLD HIM IT WOULDN'T WORK!

A SPACE AGE CHRISTMAS

Even with all the super-automated, mass-produced, computer-controlled technology we are evolving every day there is still no reason why our age-old traditions should ever disappear.

And so Christmas in the year 2003 might not be that much different from the festival we all enjoy today. But though the celebrations may mean the same, and the traditions may still go on, some things will probably have changed . . . .



CHRISTMAS COOKING BY COMPUTER

For instance it might well be that everyone's Christmas dinner will be cooked with the help of a home computer. This will be good news for the housewife – all she will have to do will be to set the dials and sit back until the meal is cooked. The computer will make sure that the correct temperatures are maintained, and when the food is done to a turn it will switch off the heat.

This heat could be microwave, as is used in some restaurants today, or it might be the new 'cold heat', which uses infra-red rays, radiating from a series of tubes. This 'cold heat', which is called 'cold' because it does not glow red or appear to be hot at all when you look at it, will be used for grilling.

A PLASTIC PINE

The traditional decorated tree is very unlikely to be a real tree, but will probably be a plastic one, just as some homes already have today. But to make it seem like the traditional Christmas festival, the plastic tree will probably be impregnated with the smell of pine.

If pollution and the effects of the population explosion go on at the present rate, there will probably be very few trees left in the world, and any forests which do still exist will be protected by stringent laws.

CARDS AND PRESENTS

Christmas cards might well be a thing of the past by 2003.

Already people can speak on the telephone to friends and relations thousands of miles away, and by 2003 you might even be able to see the person you are talking to, if the video-phone comes into common use.

Christmas messages might possibly also be sent on recording tape, and as this could well be the thickness of a human hair, such a tape would fit neatly into a small envelope.

There are two theories about the kind of Christmas presents you might expect in 2003, and no one can say exactly which of them is correct.

Because of the incredible advances in automation, machines might well be doing most of the work in our factories and offices, and so everyone might have much more leisure time. Many people believe that this will lead to a revival of handicrafts of all kinds, both because everyone will have more time for the craftsmanship involved and also because of the sheer unattractiveness of many mass-produced goods.

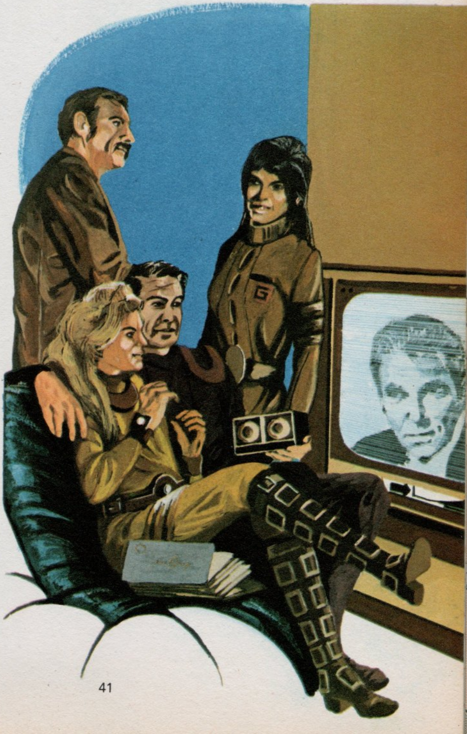
So, if that theory is correct, Christmas presents in the year 2003 would probably be hand-made garments, handbound books, and beautifully-made objects in such materials as silver, gold, porcelain and fine china.

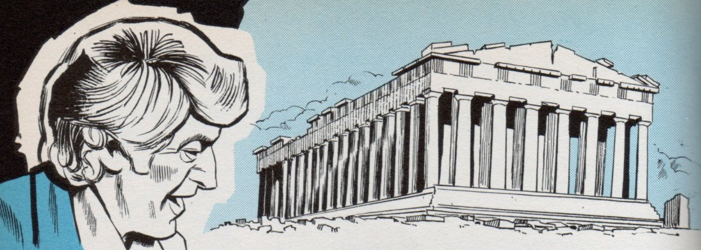
The opposing theory argues that these handicrafts are being widely forgotten, and that there are fewer and fewer craftsmen, so that interest in handicrafts might eventually die completely. If that happens, your 2003 Christmas present is more likely to be something like a miniature pocket computer, or maybe a ticket for a day trip in orbit round the Earth!

So there you are. Those are some of the theories and ideas about what Christmas might be like in the 21st century. All the experts have spent a lot of time, and done a lot of research, trying to predict exactly how we will be living in future years.

But for all the knowledge and science that we have, all anyone can do is predict. No one knows exactly what daily life will be like in the next century.

But let's hope that all that's best about our traditional Christmas will stay, and that it will still be the same festival of happiness and goodwill that it is today.





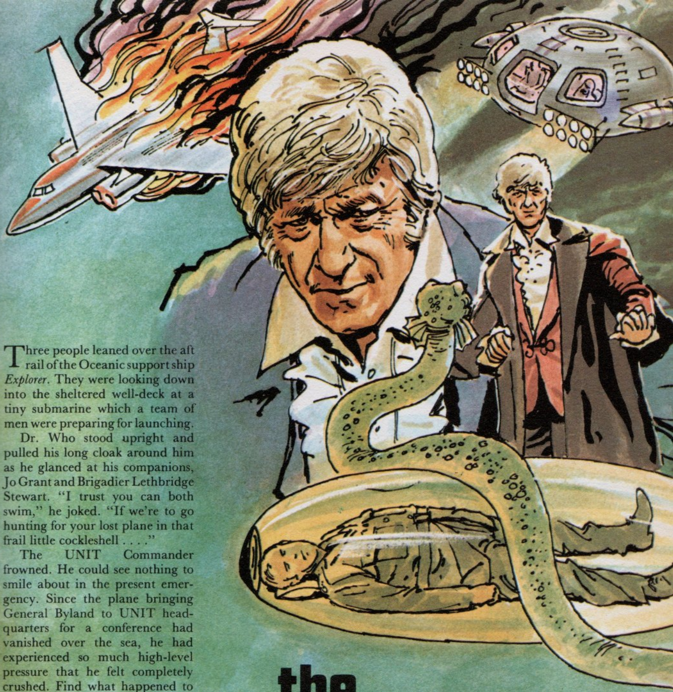
A COLLECTION OF CITIES

Dr. Who has visited many strange and fabulous cities, some of which include the City of Silence and the City of the Sleepers. Do you know which cities are known as:

1. The City of Lanterns?
2. The City of Dreaming Spires?
3. The City of the Violet Crown?
4. The City of the Three Kings?
5. The City of Palaces?
6. The City of Lilies?
7. The City of Legions?

ANSWERS

1. The city beyond the zodiac stars.
2. Oxford.
3. Athens.
4. Cologne, where the Magi are said to be buried.
5. Rome.
6. Florence.
7. Caerleon-on-Usk, where King Arthur held his court.



the FATHOM TRAP

Three people leaned over the aft rail of the Oceanic support ship *Explorer*. They were looking down into the sheltered well-deck at a tiny submarine which a team of men were preparing for launching.

Dr. Who stood upright and pulled his long cloak around him as he glanced at his companions, Jo Grant and Brigadier Lethbridge Stewart. "I trust you can both swim," he joked. "If we're to go hunting for your lost plane in that frail little cockleshell . . . ."

The UNIT Commander frowned. He could see nothing to smile about in the present emergency. Since the plane bringing General Byland to UNIT headquarters for a conference had vanished over the sea, he had experienced so much high-level pressure that he felt completely crushed. Find what happened to the plane, they had demanded in Whitehall . . . find the wreckage . . . find General Byland . . . find the pilot . . . .

Jo Grant looked at the soldier's worried face and felt sorry for him. She had been around his office while most of those strident-voiced telephone calls had been coming in. She knew the dreadful load of responsibility heaped on the commander's shoulders. That was why she had volunteered to go with him on his undersea search for the lost plane. She was glad the Doctor had asked to go, too. For, despite the Brigadier's frequent irritation with the flamboyant space-time traveller, she knew of his great respect for Dr. Who's brilliant mind.

"I think they're ready for us to go aboard the *Pisces*," said Jo, noticing one of the white-coated technicians motioning from the deck below.

The Brigadier snapped to attention. He strode away to lead the way down a flight of steps to the well-deck.

A young man in blue overalls came to meet him. "My name's Jim Burton, Brigadier. I'm your pilot."

The other was plainly taken aback by the pilot's youthful appearance. He had probably expected a grizzled veteran for such a vital mission.

"I – er – hum, trust you realise the importance of this search," grunted the commander. "Got to find what happened to the plane . . . ."

Burton gave him an easy smile. "Well, the *Pisces* is a nippy little submersible. And the last radio message from the plane was in this quadrant," he reassured. "Shall we hop in and get cracking?"

'Hopping in' entailed climbing through the hatch in the conning tower, and lowering themselves into the small cabin. It was little more than a steel sphere crammed with instruments. There were three view ports. Jo and the Brigadier took up positions at two of these. Burton sat at the third port, below which was positioned the control console. The Doctor sat facing the television screen, and examining the instruments around him with professional interest.

Burton flipped on the radio switch and chatted laconically to the launch crew as they swung the undersea craft over the stern of the *Explorer*. Then the *Pisces* began her dive, and the waters closed around the view ports.

At close to a thousand metres Burton switched on the searchlights and they saw the bottom. The young pilot then began a painstaking search.

An hour ticked by in the air-conditioned comfort of the tiny cabin. Suddenly the Brigadier stiffened and he peered through his view port. "Look! Wreckage! It's the plane – I'm sure of it!"

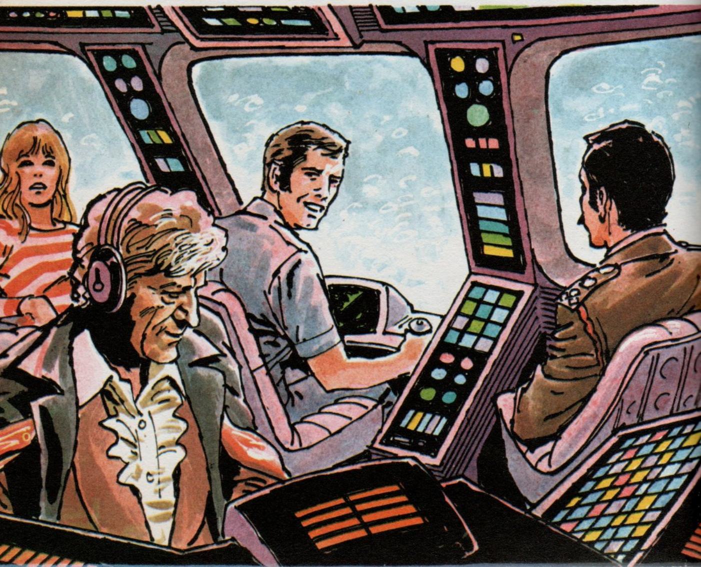
Burton skilfully manoeuvred his craft until they could all see what Lethbridge Stewart had spotted. Although half buried in the mud and sand, it could plainly be made out to be part of an aircraft wing.

Burton reached for a switch on his control board. "I'll pick it up with my grab, and we'll head back for the *Explorer*," he said.

"Wait!" They all turned at the sound of Dr. Who's voice. He was peering intently at the closed circuit screen. The TV camera mounted on the hull of the *Pisces* was slowly scanning the ocean bed.

"How far does your camera scan?" queried the Doctor.

"A hundred yards radius," answered Burton. He glanced curiously at the other. Something about his dandified dress – the lace-fronted shirt and black cravat, and that garishly-lined cloak – made him want to smile. Yet he knew by instinct that here was a most unusual man. "Why? Did you spot something?" asked the pilot.



"Reverse your scan – quickly!" rapped Dr. Who.

Burton's hand leaped to the dial, and the camera outside panned back to where it had been scanning a moment before.

The Doctor pointed: "There. Stop it at that spot! You see? That mound buried beneath the globigerina ooze?"

They were all staring at the screen. But Jo said: "The plane would hardly be buried that deep in such a short time, would it, Doctor?"

He answered without taking his eyes from the screen: "I agree, Jo. That's not wreckage. It is something quite round in shape – and I would rather like to know what's there."

"Now, really, Doctor!" The Brigadier made no effort to disguise his exasperation. "This is a vital mission to find why General Byland's plane crashed. We simply have no time for satisfying your scientific curiosity."

A benevolent smile played around the other's lips as he glanced at the bristling soldier. "We may find that this has something to do with your vital mission, Brigadier," he said mildly.

Burton was already moving the *Pisces* to a point above the mound. "Won't take long to check what's buried there," he said, busy with his controls. "I've got a mud pump."

He bent to peer through his viewing port as he operated a switch.

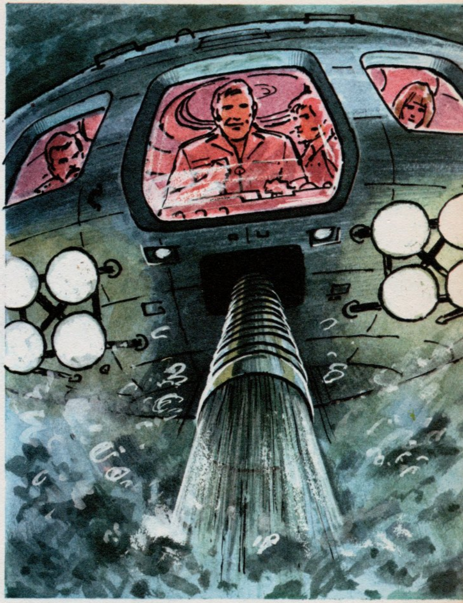
Dr. Who joined Jo Grant at her porthole.

The Brigadier frowned and hesitated in the face of this *fait accompli*. Then, grudgingly, he moved towards his own viewing window.

From a powerful nozzle on the end of a large hose, a jet of water was hurling aside the globigerina ooze.

"Ingenious!" exclaimed Dr. Who. "I gather you are using a submersible electric motor coupled with some sort of centrifugal pump?"

Burton gave him a quick look



that held an added respect. "Dead right, Doctor," he said. "It gives a discharge of sixty gallons a minute at sixty foot head. Can handle gravel up to three-quarters of an inch diameter, and there's no –" He broke off in mid-sentence as Jo gave a sudden cry: "Look!"

The mud pump had cleared the greater part of the mound, and revealed the dull glitter of metal. What they were staring at now seemed to be a huge, conical hatch-cover.

"Well, well!" Dr. Who's eyes gleamed with sharp interest.

"It – it seems to be hinged . . . as if it was meant to lift up," said Jo.

The Brigadier tried to regain control of the operation. "It's obviously nothing to do with the crashed plane. More like a boiler cover from a ship," he began briskly.

The pilot broke in, grabbing for the pump switch and thumbing it to the 'Off' position. "Am I going crazy, or is that thing moving?" he gasped.

Jo's eyes were wide. "It *is* moving. It's opening."

Dr. Who rounded on the young man. "Get your ship out of here . . .

Quick! Full motors!" he almost shouted.

Burton moved fast. The hum of the engine rose to a high-pitched whine. The Doctor's eyes fastened on the young man's worried face. "We're hardly moving," he remarked.

"I know." Burton's voice was low and tense.

The Brigadier stared round. "Then what's the hold up?" he demanded.

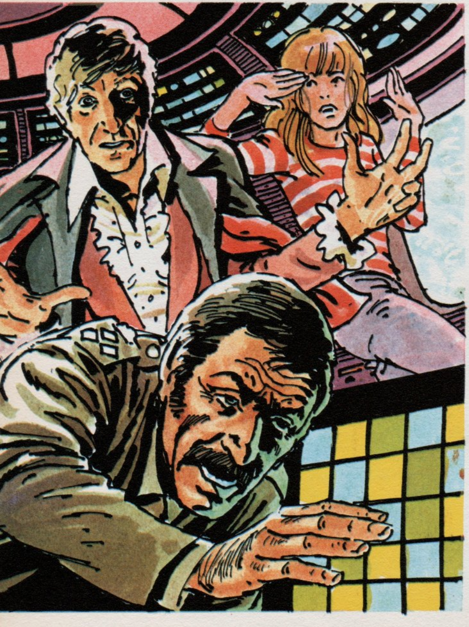
The pilot's face was grim as he pored over his console. "All I know is we're flat out. We should be making four knots."

Dr. Who spoke quietly as he glued his face to the viewing port. "Then it seems as if we are being held by some force . . . and I would hazard a guess that it's coming from that shaft."

They were all staring out now. And they could all see the shaft – a great black-mouthed entrance uncovered by the metal hatch.

Jo shivered. The mouth seemed to be growing bigger. Was that her imagination? Or was it . . . "Doctor! We're being drawn into the shaft!" she exclaimed, grabbing his arm.

It was true. The *Pisces* was slowly but surely being pulled into that black maw.



Burton stabbed the microphone switch and yelled: "*Explorer*! We're in trouble! We –"

He never finished the warning. There was a flash from the acoustic transmission unit, and at the same moment the cabin lights and outside lights went out.

As the *Pisces* was drawn down into the mysterious seabed shaft, the four people were flung about by the violent corkscrew action. The bleep of the sonar signal rose to a maniac howl, and as the cabin pressure failed they felt their heads bursting as their senses reeled into a merciful blackness . . . .

When Jo opened her eyes a few moments later, the first thing to swim into focus was Dr. Who's grim face anxiously watching her. "Are you all right, Jo?" he exclaimed.

She shook her head to try and clear the muzziness from her brain, and managed to stand. "Yes, I'm okay, Doctor." She stared around her in disbelief. "What – where are we?"

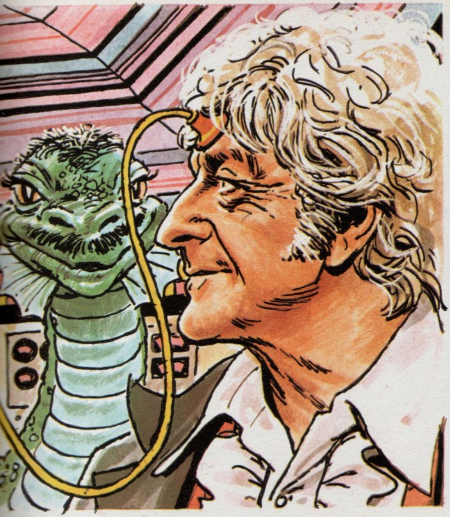
They were in a large pentagonal chamber, the floor and ceiling and walls of which were sheathed in some glistening metal. It was empty except for herself and the Doctor, and the still unconscious forms of Burton and the Brigadier. When Jo made a move to try and help them, she found her ankles and wrists bound with thin strips.

"It's no use trying to escape, my dear," said the Doctor. "And as for where we are – well, I believe this chamber must lie at the bottom of the shaft."

Burton rolled over and groaned. Then he sat up, staring. "The *Pisces* . . . ? Where's my ship?"

The Doctor shrugged. "I can only surmise that it is in some submarine docking chamber nearby . . . Now, if you'd just give the Brigadier a shake, we could perhaps have a conference on what to do."

Lethbridge Stewart was conscious again as soon as the Pilot



touched him. His military instinct made him alert to the danger surrounding them, and he was fumbling for his pistol. "What's going on?" he demanded, discovering his bound condition.

"Easy, Brigadier," urged the Doctor. "We are, as you see, prisoners. I recovered my senses some time ago, so I have already met our captors. They are – to say the least – very unusual aliens . . . ."

"Aliens?" echoed Jo. "Aliens at the bottom of the sea?"

"Yes, Jo. You'll see why they chose this environment when you meet them. But I'm afraid I failed to find any way to communicate with them. I tried, but then they went away . . . ."

"We must find some way to cut these bonds before they return," rapped the Brigadier.

"If they haven't damaged the *Pisces*, and we can get to it –" began Burton. He broke off as one of the chamber walls suddenly slid open.

Jo tried to repress a cry of horror as she backed against the wall. The others felt their skins crawl in revulsion at the sight of the beings that slid towards them . . . .

They were serpentoids, with all the appearances of huge snakes and propelling themselves with sinuous movements. But their heads bore a faint resemblance to almost human faces, save for the gills at the sides of the narrow cheekbones.

"Sea Dwellers!" whispered Jo.

The serpentoids writhed around the captives, peering into their faces and uttering ululating sounds.

The Brigadier drew himself stiffly to attention and tried to quell them with a glance. "What makes you think these – these things are aliens, Doctor?" he demanded. "You said you failed to communicate with them."

The Doctor nodded. "True. But you see, since my memory of my space-time travels has been returning, I can recall an alien race of serpentoids. Not hostile, either, if I remember correctly. In fact –"

"Doctor – look!" exclaimed Burton.

Two serpentoid guards, carrying tiny ray-guns in their minute fin-like hands, had entered. They were propelling before them two transparent pods, in which lay the bodies of two men.

"Great heavens! It's General Byland. And the other must be his pilot," said the Brigadier. "So their death was no accident."

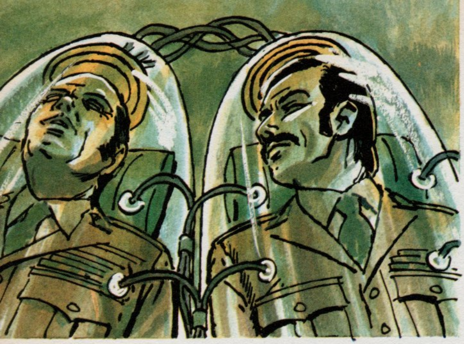
"Before you jump to any hasty conclusion, Brigadier, consider two facts," said Dr. Who mildly. "First – the injuries. I would say they were caused by a plane crash. And second – why would these serpentoids preserve the bodies with such care?"

Before the soldier could reply there was a sudden movement among the ranks of the aliens, and two of them approached Dr. Who with a round instrument from which was extended a waving tentacle. One of the beings took the end of the tentacle and held it towards the Doctor's face.

Jo gave a gasp: "Oh no! Not torture!"

"I think not, my dear." The Doctor was calmly allowing the suction end of the tentacle to be fastened to his high forehead. "I think they are trying another form of communication."

Silence fell in that strange sea-bed chamber as Dr. Who closed his eyes and seemed to go into a trance . . . . Into his mind swam the whispered ululation of the serpentoid, but suddenly the sounds formed words . . . "We are the Kluss. We were on a voyage from our planet when our space-ship failed. We were forced to



land here. Then we found these bodies in the water."

"Are they dead?" thought Dr. Who.

"No. But we could not repair them without a model. So we preserved them in the pods."

"You mean that with one of us as a model, you can heal these two?"

"Yes. And, in return, we would ask you to help us to repair our ship so that we may continue our voyage."

"I will be glad to help you," thought Dr. Who. "You apparently took our craft as hostile, but we mean no harm."

The others, watching intently, saw the Doctor open his eyes as the tentacle was removed from his head.

He smiled to reassure them, and quickly explained his thought-conversation. As he talked, the serpentoids released their captives from their bonds.

As the Brigadier was freed, he stepped forward. "I shall be the model they need," he said.

The Kluss seemed to understand, for they led the way out of the chamber, with the soldier marching behind them.

Jo hesitated, looking at the Doctor. He nodded. "Yes. Go with them, Jo. The Brigadier may need your support."

Jo obeyed. She followed Lethbridge Stewart into another smaller chamber in which were more of the transparent pods. At a signal, he lay down inside one of the pods, and the serpentoids closed it and propelled it beneath a battery of instruments. The pods containing General Byland and the plane pilot were placed beside him.

From a control board the Kluss surgeons operated their instruments. Jo shielded her eyes as a weird, eldritch glow suffused the pods . . . .

The Doctor and Jim Burton were following the Kluss technicians from the engine-room of their ship when they saw Jo Grant running towards them. Her face was flushed with wonder and excitement.

"Doctor! They've done it! The General and the pilot are all right, and so is the Brigadier. The Kluss have taken them to the *Pisces*, and they say we can leave as soon as you are ready."

"Which is right now, my dear." smiled Dr. Who.

"You mean – you repaired their engines for them?" asked Jo.

The Doctor shrugged: "Their power source failed for a lack of two simple elements – magnesium and potassium. We showed them that they are surrounded by a plentiful supply of both."

Jo's eyes widened. "Good Lord, yes!" she exclaimed. "The sea-water! They can extract as much as they want."

"They've already begun," grinned Burton. "So let's say our goodbyes and leave them to it."

An hour later the *Pisces* was back on the well-deck of the mother ship. Her passengers were lining the rails, staring intently at the sea through field-glasses . . . .

"There!" It was the Brigadier's cry that made them swing their glasses to where he was pointing. Half a mile away the sea had begun to boil upwards into a foam-flecked spout. Suddenly from out of the spout a dark shadow sprang upwards. It moved at such a fantastic speed that none of them could say later what shape the Kluss ship had taken.

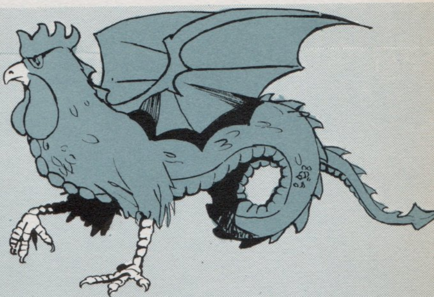
The Doctor lowered his glasses and raised a hand in salute to the heavens. "Goodbye, my friends. And safe journey," he murmured.

Dr. Who has seen and defended himself from many strange beasts, including creatures from prehistoric times. Legend and mythology is full of equally strange and terrifying creatures, some of which terrorised hundreds of people until they were finally conquered.

MALEVOLENT MONSTERS

THE COCKATRICE

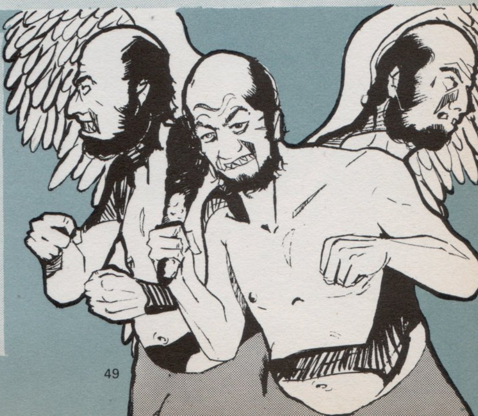
The cockatrice was a mythical monster that was born out of an egg laid by a cock and hatched out by a serpent. It was a mixture of both these creatures, having the scaly tail of a dragon, but the head and claws of a cock, and large wings. If a person was unfortunate enough to see this horrible apparition, he immediately fell down dead . . . probably from fright!

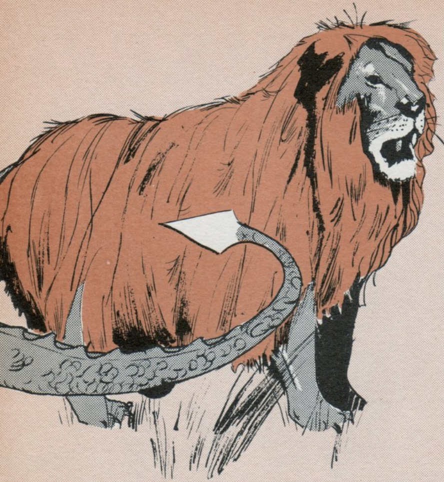


GERYON

Another of the twelve labours of Hercules that this Greek hero successfully accomplished was the killing of the giant Geryon and his dog Orthrus, and the capturing of the giant's oxen which ate human flesh!

Orthrus had two heads, but Geryon himself had three heads and three bodies shaped like those of a human man, a ram and a goat, and he also had a pair of gigantic wings! Despite his great strength, Geryon was no proof against the arrows of Hercules, and he was finally slain, leaving Hercules free to take the oxen back to King Eurytheus.

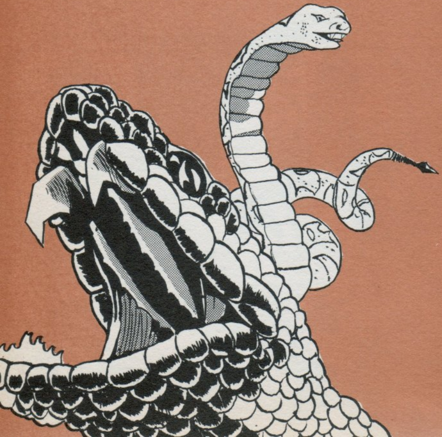




THE CHIMAERA

It was the King of Lycia who gave Bellerophon the task of killing the Chimaera, a monster with a shaggy body, a lion's head from which great flames gushed forth, and a scaly tail like that of a dragon.

Bellerophon sought the help of Athene who gave him a magic bridle, to tame his winged horse Pegasus. Then, using his steed to attack the monster from the air, Bellerophon first wounded the Chimaera with arrows and then pushed a lead weight into the monsters mouth. The monster's own flames melted the lead which streamed down its throat and finally killed the Chimaera.



THE PYTHON

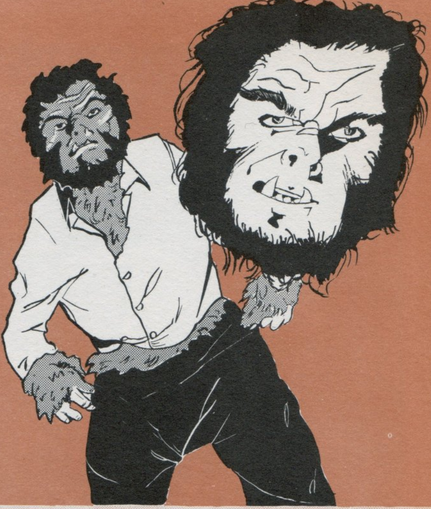
The Python was the monstrous serpent which sprang to life from the muddy residue left behind when the floods of Deucalion abated and his ark came to rest on Mount Parnassus.

This evil creature attacked crops and humans all around Delphi, until the god Apollo killed the serpent with his arrows. Apollo called the oracle at Delphi after this creature and founded the Pythian Games to commemorate his victory over the monster.

WEREWOLF

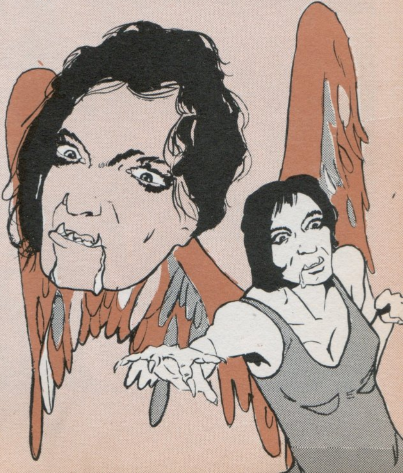
There are many tales told throughout the world of men who were either turned into wolves because of some misdeed or who turned themselves into wolves for some evil purpose. These werewolves, as they were called, roamed the woods and towns at night seeking human prey. No gun or spear could kill them unless the weapon had first been blessed in church.

The King of Arcady was turned into a werewolf by Jupiter because the king served up human flesh to the god to see if he knew what it was! Another family that angered the gods were forced to select a member of their household to take the form of a werewolf for nine years!

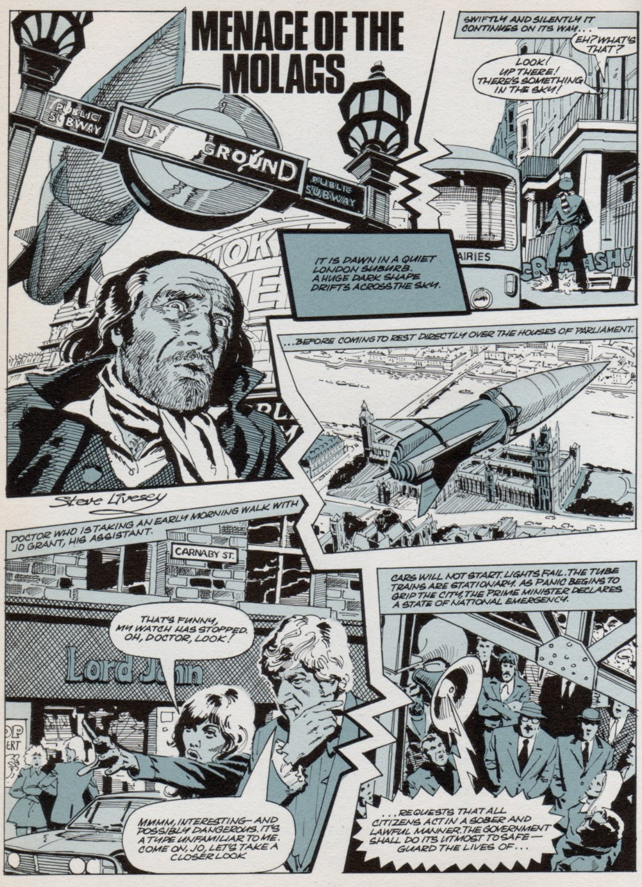


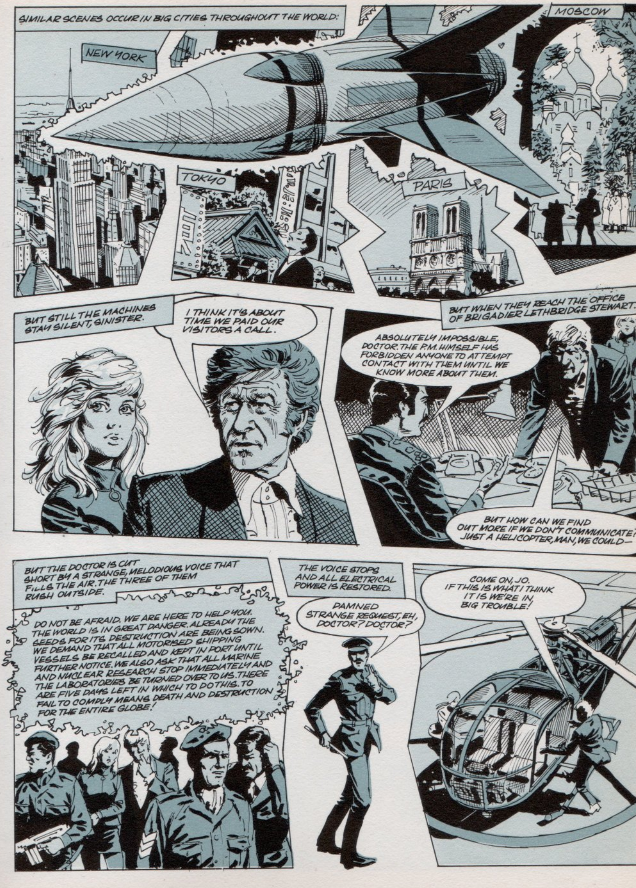
THE HARPIES

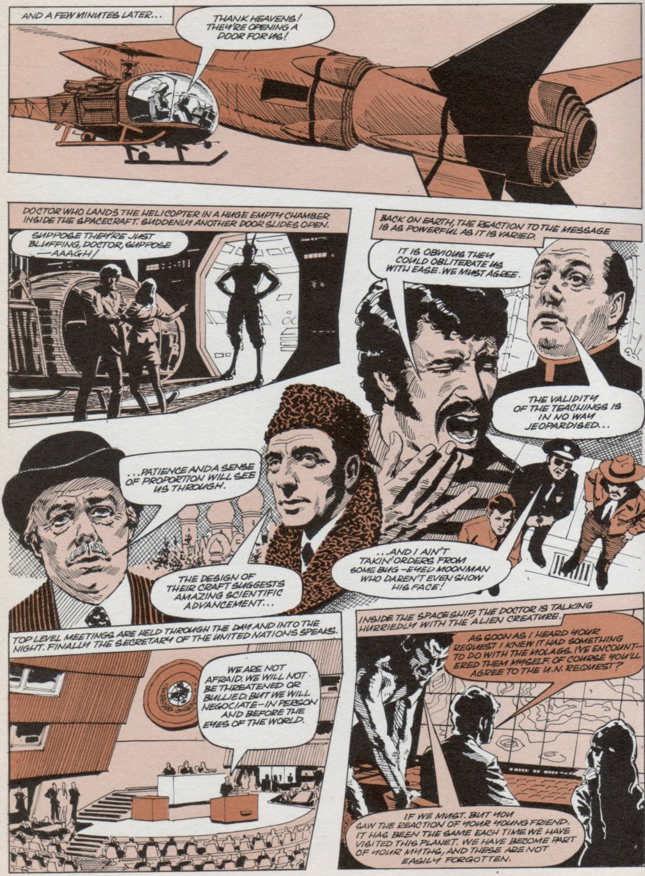
The Harpies were repulsive creatures with the body and face of a woman but with claws like eagles and wings just like those of a vulture. The Harpies were always hungry and often attacked people for food. One of their victims was an old blind man named Phineus, but he was finally rescued from these horrible monsters by Jason and his argonauts. In return Phineus told Jason the direction where the Golden Fleece lay, which was the prize Jason was seeking.

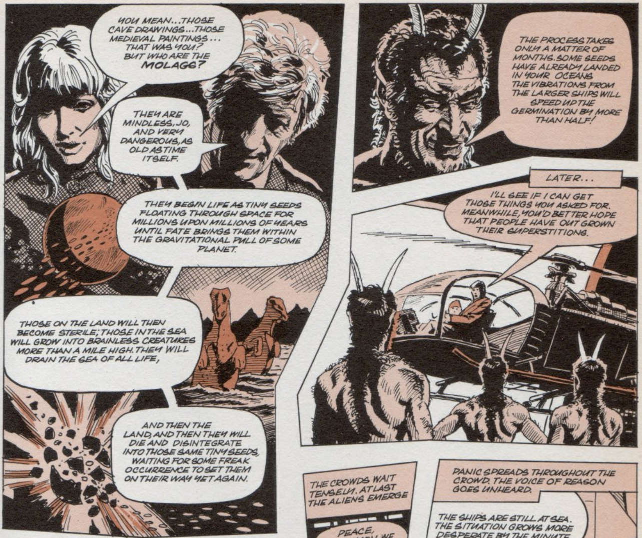


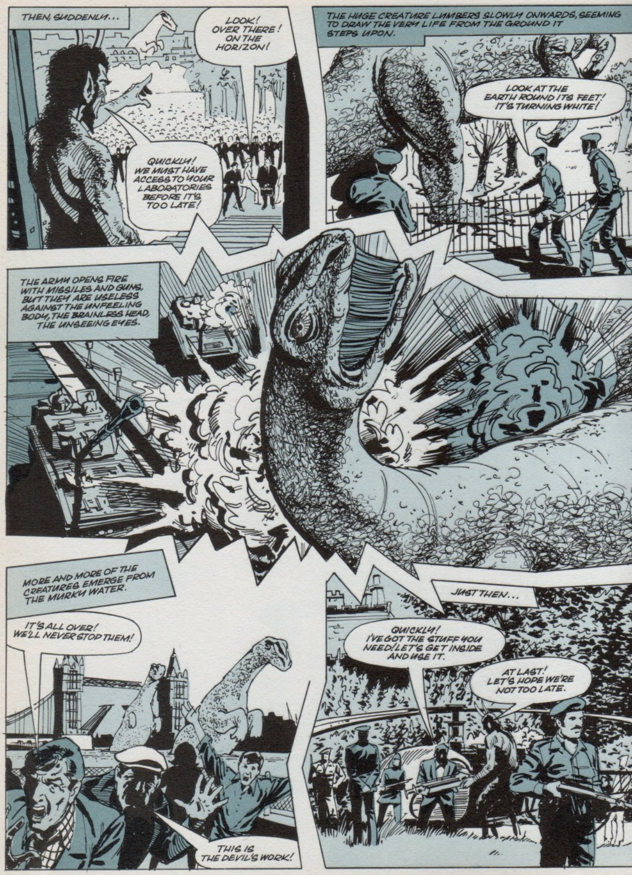
MENACE OF THE MOLAGS

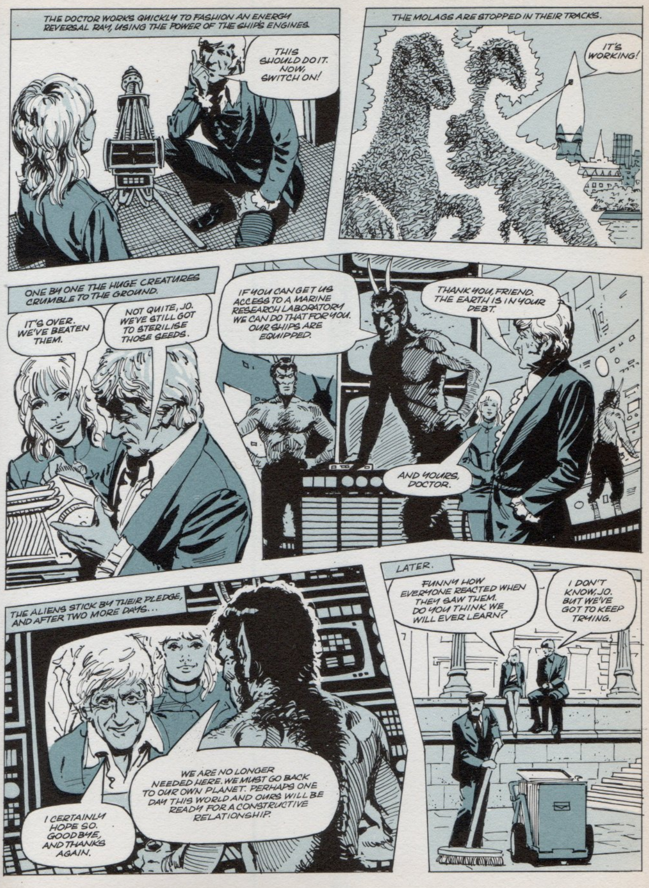

PUBLIC SUBWAY
UNDERGROUND
PUBLIC SUBWAY
Steve Livesey
IT IS DAWN IN A QUIET LONDON SUBURB. A HUGE DARK SHAPE DRIFTS ACROSS THE SKY.
AIRIES
SWIFTLY AND SILENTLY IT CONTINUES ON ITS WAY...
EH? WHAT'S THAT?
LOOK! UP THERE! THERE'S SOMETHING IN THE SKY!
CRAASH!
...BEFORE COMING TO REST DIRECTLY OVER THE HOUSES OF PARLIAMENT.
DOCTOR WHO IS TAKING AN EARLY MORNING WALK WITH JO GRANT, HIS ASSISTANT.
CARNABY ST.
Lord John
THAT'S FUNNY, MY WATCH HAS STOPPED. OH, DOCTOR, LOOK!
MMMM, INTERESTING– AND POSSIBLY DANGEROUS. IT'S A TYPE UNFAMILIAR TO ME. COME ON, JO, LET'S TAKE A CLOSER LOOK
CARS WILL NOT START. LIGHTS FAIL. THE TUBE TRAINS ARE STATIONARY. AS PANIC BEGINS TO GRIP THE CITY, THE PRIME MINISTER DECLARES A STATE OF NATIONAL EMERGENCY.
...REQUESTS THAT ALL CITIZENS ACT IN A SOBER AND LAWFUL MANNER. THE GOVERNMENT SHALL DO ITS UTMOST TO SAFE-GUARD THE LIVES OF...


SIMILAR SCENES OCCUR IN BIG CITIES THROUGHOUT THE WORLD:
NEW YORK
MOSCOW
TOKYO
PARIS
BUT STILL THE MACHINES STAY SILENT, SINISTER.
I THINK IT'S ABOUT TIME WE PAID OUR VISITORS A CALL.
BUT WHEN THEY REACH THE OFFICE OF BRIGADIER LETHBRIDGE STEWART...
ABSOLUTELY IMPOSSIBLE, DOCTOR. THE P.M. HIMSELF HAS FORBIDDEN ANYONE TO ATTEMPT CONTACT WITH THEM UNTIL WE KNOW MORE ABOUT THEM.
BUT HOW CAN WE FIND OUT MORE IF WE DON'T COMMUNICATE? JUST A HELICOPTER, MAN, WE COULD—
BUT THE DOCTOR IS CUT SHORT BY A STRANGE, MELODIOUS VOICE THAT FILLS THE AIR. THE THREE OF THEM RUSH OUTSIDE.
DO NOT BE AFRAID. WE ARE HERE TO HELP YOU. ALREADY THE WORLD IS IN GREAT DANGER. ALREADY THE SEEDS FOR ITS DESTRUCTION ARE BEING SOWN. WE DEMAND THAT ALL MOTORISED SHIPPING VESSELS BE RECALLED AND KEPT IN PORT UNTIL FURTHER NOTICE. WE ALSO ASK THAT ALL MARINE AND NUCLEAR RESEARCH STOP IMMEDIATELY AND THE LABORATORIES BE TURNED OVER TO US. THERE ARE FIVE DAYS LEFT IN WHICH TO DO THIS. TO FAIL TO COMPLY MEANS DEATH AND DESTRUCTION FOR THE ENTIRE GLOBE!
THE VOICE STOPS AND ALL ELECTRICAL POWER IS RESTORED.
DAMNED STRANGE REQUEST, EH, DOCTOR? DOCTOR?
COME ON, JO. IF THIS IS WHAT I THINK IT IS WE'RE IN BIG TROUBLE!

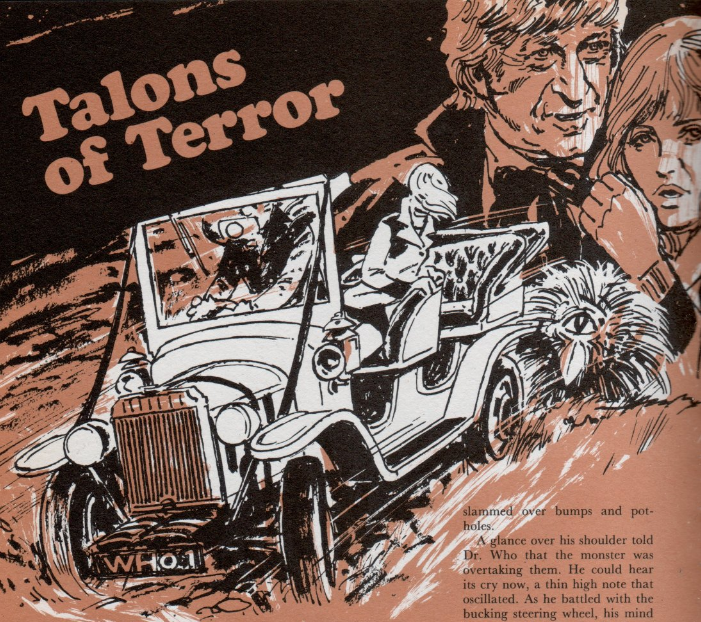

AND A FEW MINUTES LATER...
THANK HEAVENS! THEY'RE OPENING A DOOR FOR US!
DOCTOR WHO LANDS THE HELICOPTER IN A HUGE EMPTY CHAMBER INSIDE THE SPACECRAFT. SUDDENLY ANOTHER DOOR SLIDES OPEN.
SUPPOSE THEY'RE JUST BLUFFING, DOCTOR, SUPPOSE —AAAGH!
BACK ON EARTH, THE REACTION TO THE MESSAGE IS AS POWERFUL AS IT IS VARIED.
IT IS OBVIOUS THEY COULD OBLITERATE US WITH EASE. WE MUST AGREE.
THE VALIDITY OF THE TEACHINGS IS IN NO WAY JEOPARDISED...
...PATIENCE AND A SENSE OF PROPORTION WILL SEE US THROUGH.
THE DESIGN OF THEIR CRAFT SUGGESTS AMAZING SCIENTIFIC ADVANCEMENT...
...AND I AIN'T TAKIN' ORDERS FROM SOME BUG-EYED MOONMAN WHO DAREN'T EVEN SHOW HIS FACE!
TOP LEVEL MEETINGS ARE HELD THROUGH THE DAY AND INTO THE NIGHT. FINALLY THE SECRETARY OF THE UNITED NATIONS SPEAKS.
WE ARE NOT AFRAID. WE WILL NOT BE THREATENED OR BULLIED. BUT WE WILL NEGOCIATE—IN PERSON AND BEFORE THE EYES OF THE WORLD.
INSIDE THE SPACESHIP, THE DOCTOR IS TALKING HURRIEDLY WITH THE ALIEN CREATURE.
AS SOON AS I HEARD YOUR REQUEST I KNEW IT HAD SOMETHING TO DO WITH THE MOLAGS. I'VE ENCOUNTERED THEM MYSELF. OF COURSE YOU'LL AGREE TO THE U.N. REQUEST?
IF WE MUST. BUT YOU SAW THE REACTION OF YOUR YOUNG FRIEND. IT HAS BEEN THE SAME EACH TIME WE HAVE VISITED THIS PLANET. WE HAVE BECOME PART OF YOUR MYTHS, AND THESE ARE NOT EASILY FORGOTTEN.


YOU MEAN...THOSE CAVE DRAWINGS...THOSE MEDIEVAL PAINTINGS... THAT WAS YOU? BUT WHO ARE THE MOLAGS?
THEY ARE MINDLESS, JO, AND VERY DANGEROUS, AS OLD AS TIME ITSELF.
THEY BEGIN LIFE AS TINY SEEDS FLOATING THROUGH SPACE FOR MILLIONS UPON MILLIONS OF YEARS UNTIL FATE BRINGS THEM WITHIN THE GRAVITATIONAL PULL OF SOME PLANET.
THOSE ON THE LAND WILL THEN BECOME STERILE; THOSE IN THE SEA WILL GROW INTO BRAINLESS CREATURES MORE THAN A MILE HIGH. THEY WILL DRAIN THE SEA OF ALL LIFE,
AND THEN THE LAND, AND THEN THEY WILL DIE AND DISINTEGRATE INTO THOSE SAME TINY SEEDS, WAITING FOR SOME FREAK OCCURRENCE TO SET THEM ON THEIR WAY YET AGAIN.
THE PROCESS TAKES ONLY A MATTER OF MONTHS. SOME SEEDS HAVE ALREADY LANDED IN YOUR OCEANS. THE VIBRATIONS FROM THE LARGER SHIPS WILL SPEED UP THE GERMINATION BY MORE THAN HALF!
LATER...
I'LL SEE IF I CAN GET THOSE THINGS YOU ASKED FOR. MEANWHILE, YOU'D BETTER HOPE THAT PEOPLE HAVE OUTGROWN THEIR SUPERSTITIONS.
THE STAGE IS SET FOR THE HISTORIC MEETING IN A LONDON PARK. ALL THE WORLD LEADERS ARE THERE...
THE CROWDS WAIT TENSELY. AT LAST THE ALIENS EMERGE
PEACE, EARTHMEN. WE MUST WORK QUICKLY
THE DEVIL! IT'S THE DEVIL HIMSELF! HE'S COME TO CLAIM US FROM GOD! WE'VE SINNED TOO LONG!
PANIC SPREADS THROUGHOUT THE CROWD. THE VOICE OF REASON GOES UNHEARD.
THE SHIPS ARE STILL AT SEA. THE SITUATION GROWS MORE DESPERATE BY THE MINUTE.
DON'T LISTEN! HE'S HERE TO KILL US! HE'S HERE TO KILL US ALL!
MORE OF THEM! THERE'S MORE OF THEM INSIDE!


THEN, SUDDENLY...
LOOK! OVER THERE! ON THE HORIZON!
QUICKLY! WE MUST HAVE ACCESS TO YOUR LABORATORIES BEFORE IT'S TOO LATE!
THE HUGE CREATURE LUMBERS SLOWLY ONWARDS, SEEMING TO DRAW THE VERY LIFE FROM THE GROUND IT STEPS UPON.
LOOK AT THE EARTH ROUND ITS FEET! IT'S TURNING WHITE!
THE ARMY OPENS FIRE WITH MISSILES AND GUNS, BUT THEY ARE USELESS AGAINST THE UNFEELING BODY, THE BRAINLESS HEAD, THE UNSEEING EYES.
MORE AND MORE OF THE CREATURES EMERGE FROM THE MURKY WATER.
IT'S ALL OVER! WE'LL NEVER STOP THEM!
THIS IS THE DEVIL'S WORK!
JUST THEN...
QUICKLY! I'VE GOT THE STUFF YOU NEED! LET'S GET INSIDE AND USE IT.
AT LAST! LET'S HOPE WE'RE NOT TOO LATE.


THE DOCTOR WORKS QUICKLY TO FASHION AN ENERGY REVERSAL RAY, USING THE POWER OF THE SHIP'S ENGINES.
THIS SHOULD DO IT. NOW, SWITCH ON!
THE MOLAGS ARE STOPPED IN THEIR TRACKS.
IT'S WORKING!
ONE BY ONE THE HUGE CREATURES CRUMBLE TO THE GROUND.
IT'S OVER. WE'VE BEATEN THEM.
NOT QUITE, JO. WE'VE STILL GOT TO STERILISE THOSE SEEDS.
IF YOU CAN GET US ACCESS TO A MARINE RESEARCH LABORATORY WE CAN DO THAT FOR YOU. OUR SHIPS ARE EQUIPPED.
THANK YOU, FRIEND. THE EARTH IS IN YOUR DEBT.
AND YOURS, DOCTOR.
THE ALIENS STICK BY THEIR PLEDGE, AND AFTER TWO MORE DAYS...
WE ARE NO LONGER NEEDED HERE. WE MUST GO BACK TO OUR OWN PLANET. PERHAPS ONE DAY THIS WORLD AND OURS WILL BE READY FOR A CONSTRUCTIVE RELATIONSHIP.
I CERTAINLY HOPE SO. GOODBYE, AND THANKS AGAIN.
LATER.
FUNNY HOW EVERYONE REACTED WHEN THEY SAW THEM. DO YOU THINK WE WILL EVER LEARN?
I DON'T KNOW, JO. BUT WE'VE GOT TO KEEP TRYING.

Talons of Terror



The Thing came from behind the rocks and lunged at Dr. Who's car with deadly intent. Jo Grant was sitting beside the Doctor as he drove to the remote Yorkshire hall where a vital secret conference was to be held. At his sudden exclamation, she turned her eyes from the beauty of the wolds to the horror of the bloated form bearing down on them.

"What is it?" Her terrified cry was torn to shreds by the wind as the open-topped Edwardian car jetted forward at the touch of a button. The Doctor was hauling at the wheel, and like a yellow streak the car jolted from the smooth macadam surface onto a moorland cart track.

From the corner of his eyes he caught sight of the creature swerving to follow them . . . if it *was* a creature! His fleeting impression was that of a bulbous head with a single eye that glowed green like a cat's eye in the lengthening twilight shadows. The lower part of the head was taken up by a huge beak, cruelly curved like a hawk's. The body was bloated and obscene, with a single talon extended and ready to grab and crush.

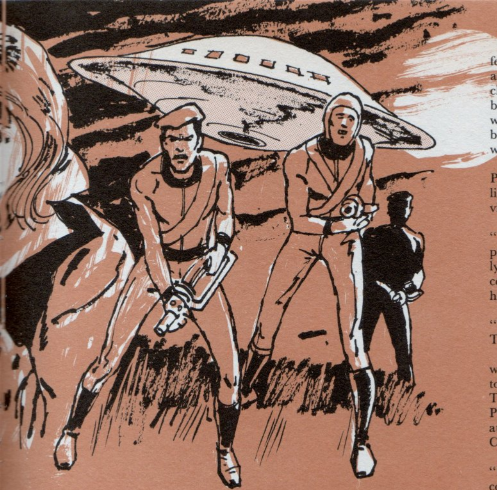
The cart track ran straight as it climbed. But it was never meant for the fantastic speed that Dr. Who could conjure from beneath the prim-looking bonnet cover. Jo held on like grim death as they catapulted into the air and slammed over bumps and potholes.

A glance over his shoulder told Dr. Who that the monster was overtaking them. He could hear its cry now, a thin high note that oscillated. As he battled with the bucking steering wheel, his mind fought another battle. He knew there was even more reserves of power under the bonnet of his 'antique' car. But dare he risk more speed? The track was petering out into little more than a sheep track, and long outcrops of granite now appeared through the ling grass like the fingers of a man drowning in a weed-covered sea.

"Wee-ee-oo-ee!" The creatures wailing cry dinned in their ears.

Jo Grant screamed as its talon scraped the back of the car.

At the same moment a saucer-like shape came skimming from behind a hog-backed ridge of rock. It flashed low over the yellow car, and as she ducked instinctively Jo glimpsed several glowing portholes.



There followed a harsh sputter, and a flickering light bathed the dark valley. The Doctor was busy bringing his jolting vehicle to a halt, but Jo twisted in her seat and saw the Thing writhing in agony.

The saucer craft made another lightning sweep. This time the Doctor saw the flickering beam that came from it, stabbing with deadly accuracy into the bloated mass . . . .

There came one last high bird-like scream as the Thing glowed, and then vanished before their eyes.

Jo leaned back, sobbing in her seat.

Dr. Who patted her shoulder before scrambling out. "That was very close, wasn't it? But we've escaped with little more than bumps and bruises – thanks to our airborne rescuers."

He watched the craft drift to the hillside with a muted whisper of engines. A hatchway slid open, and three tall figures in a silver grey uniform emerged and came towards the car. Each man held a short-barrelled weapon.

Dr. Who greeted them with a smile. "Thank you for saving our lives," he began, and held out a hand in welcome.

The leader raised his weapon in salute. He was the smallest of the three, but his superior rank was obvious from the close-fitting helmet he wore, in contrast to a beret-type of cap worn by his companions.

"Greetings, Premier Lutz. I am taking you into protective custody," he rasped.

"But I am not Premier Lutz. You have made a mistake," replied the Doctor.

"No mistake. Show him, Vret."

One of the taller men obeyed the leader by producing a cube, which he held out towards the Doctor and Jo. They found themselves looking through transparent walls at a tiny moving picture. It was that of a man dressed in the same dark clothes and flowing cloak as Dr. Who. The heavy features were lined with worry and his iron-grey hair was clipped close beneath the brim of a wide-brimmed hat. He was seen to be walking in front of a palatial building, and climbing behind the wheel of a vintage yellow car.

Jo burst out: "Oh yes! That's Premier Lutz. He *does* look a bit like Dr. Who, and he *does* collect vintage cars for a hobby. But – "

The leader waved her to silence. "That is enough. You seek to protect the Premier from us, by lying. But we, the Kreffs, have come from the Future to protect him from the Perigons."

The Doctor's eyes gleamed. "The Perigons? You mean that Thing which chased us – ?"

The leader nodded. "That was one of them. Monsters. They too have travelled back from our Time. Their aim is to kill you, Premier Lutz, before you can attend the secret International Conference at High Crag Hall.

Jo started in astonishment. "How do you know about the conference? It's top secret."

The other shrugged. "I told you we came from the Future. The conference is part of our history." He motioned with his weapon towards the saucer craft. "Come. I will explain when we are aboard the ship."

Dr. Who hesitated. "My car?"

The leader waved impatiently. "You can return to collect it, after you have presented your great plan to the conference."

Politely but firmly the Kreffs shepherded Jo and the Doctor to their ship. They climbed a flight of metal steps to enter, and heard the hatchway close behind them.

They were in a control room glistening with highly sophisticated instruments. The leader, whom the others referred to as Captain Riombo, took his place at one of the panels, with Vret beside him, leaving the third man, Gougas, to stand behind the passengers.

As the saucer ship whispered into life and spun away, Dr. Who said quietly: "Quite extraordinary, Jo. Apparently there are only these three. They can fly the ship alone."

But Jo was too worried to marvel at the ease of handling the Kreff ship. "When Brigadier Lethbridge-Stewart finds we haven't arrived at the hall he'll start looking for us. But will he spot your car up there on the fellside?" she whispered.

"He'll hardly think of looking there," agreed the Doctor. "But let's not worry about that, Jo. These people obviously mean us no harm. Both they and the Perigons have mistaken me for Premier Lutz. And as long as the monsters continue to believe it, the real Premier will be left unmolested to attend the conference."

Jo asked: "What would happen if the Premier didn't attend the conference?"

It was Captain Riombo who answered her. He had left his place at the controls and stood behind them. "I will show you what would happen. Follow me," he said.

He led the way to a small room and they sat facing a screen. It glowed with light as he touched a button. They found themselves looking at moving pictures of history yet to be made. "For us these events have already happened since we are from the Future," he explained. "You see that our History records that Premier Lutz laid a revolutionary plan before the secret conference. It was a plan which paved the way for the Golden Age in inter-galactic relations."

Riombo paused, glancing with respect at Dr. Who. "We Kreffs have always been thankful for your foresight, Premier Lutz. Without your plan we would not have been able to call upon the Galaxy Peace Force in our struggle to stop the Perigons taking over our planet."

His voice broke off as they watched the grim struggle with the monsters shown on the screen. Only when the Peace Force arrived were the Perigons defeated.

"So you see how close they were to seizing power," added Riombo, as he switched off the screen.

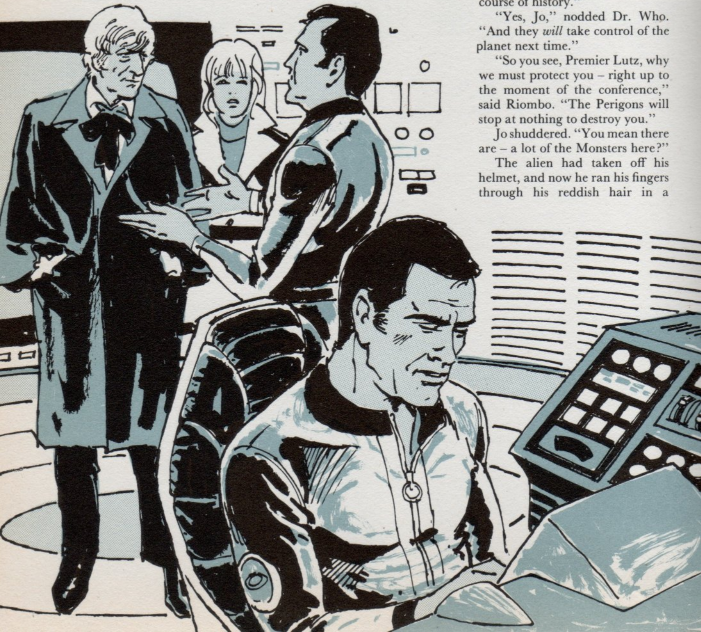
Jo nodded. "And that's why they have come back to our Century," she said. "If they can stop Premier Lutz from presenting his plan, they can change the course of history."

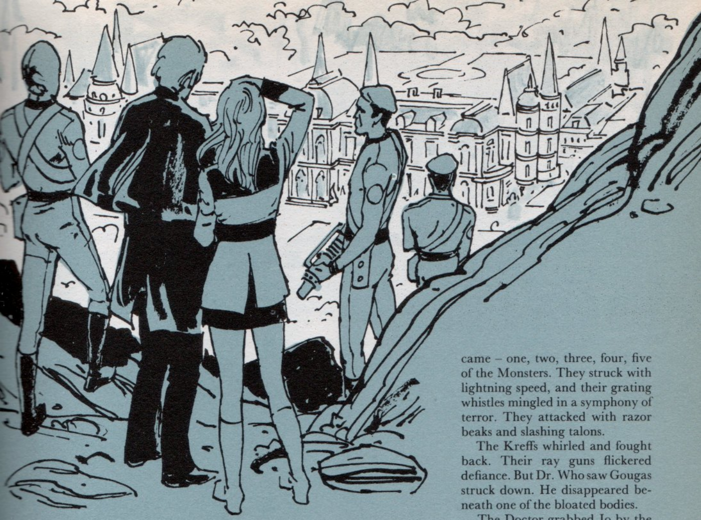
"Yes, Jo," nodded Dr. Who. "And they *will* take control of the planet next time."

"So you see, Premier Lutz, why we must protect you – right up to the moment of the conference," said Riombo. "The Perigons will stop at nothing to destroy you."

Jo shuddered. "You mean there are – a lot of the Monsters here?"

The alien had taken off his helmet, and now he ran his fingers through his reddish hair in a





worried gesture. "We don't know how many may have got through the Time Vortex before we discovered the leak. When we came after them, it was necessary to close the Vortex behind our ship."

Jo's eyes widened. "You *closed* it, Captain? But surely that is like closing the door to the Future."

Riombo shrugged. "Perhaps. But even if we are trapped in your Century, it will be a small price to pay to ensure that our history remains unchanged. But come," he added, as a signal light winked, "we have arrived."

They followed Riombo back into the control room. He strapped his helmet back on, and picked up his weapon. Gougas and Vret were already prepared. As soon as the landing hatch slid open, they leaped outside and took up security positions.

"Come," rapped the Captain. He marched ahead of his passengers. They emerged on a rocky plateau. Below them lay a large, rambling grey stone building with many turrets and towers.

"High Crag Hall?" queried the Doctor.

Riombo nodded. "We shall escort you to the gates, Premier Lutz. As you know, the conference begins in the morning, but you will be safe to spend the night in the Hall, while we keep guard."

Jo glanced at the Doctor's face as they fell in step with the Kreff escort. But his mild expression gave her no clue as to what he might be planning.

The evening shadows were lengthening into night by the time they had descended the slope to an avenue of trees. It was just as they entered this avenue that the attack came . . . .

From the black shadows they came – one, two, three, four, five of the Monsters. They struck with lightning speed, and their grating whistles mingled in a symphony of terror. They attacked with razor beaks and slashing talons.

The Kreffs whirled and fought back. Their ray guns flickered defiance. But Dr. Who saw Gougas struck down. He disappeared beneath one of the bloated bodies.

The Doctor grabbed Jo by the arm. "Run!" he urged.

They hurled themselves down the tree-lined avenue. The sound of the battle grew fainter behind them.

The avenue led onto a wider road that ran towards the gates of the Hall. Their headlong flight slowed to a walk as they spotted the headlights of a car coming down the driveway to the gates.

As it drew closer, Jo stopped and grabbed Dr. Who's arm. "Look!" she exclaimed.

The car was an upright one, with its hood back, and the night sky reflected on its gleaming yellow paintwork.

"It's – it's your car, Doctor!" gasped Jo.

As it swept past them they caught a glimpse of the driver in dark clothes, black cape and wide-brimmed hat.

"It's Premier Lutz!" exclaimed Dr. Who, staring at the vanishing tail-light. "He's arrived for the conference in his vintage car, and must have decided to go for a spin on the moors."

"But – if the Perigons see him –" Jo left the sentence unfinished, as the Doctor darted away towards the lodge cottage. A bicycle was leaning against the wall, and he grabbed it and threw his long leg over the saddle.

"I've got to try and catch him, Jo!" he called over his shoulder, as he wobbled uncertainly down the road. "Find the Brigadier!"

The moorland road sloped downward, and the bicycle soon picked up speed. The Doctor leaned over the handlebars and his cape streamed out in the breeze. He could see the red tail-light of the old car, and it seemed to be getting bigger as he flew downhill. He hauled on the brakes, yelling the Premier's name, and skidded towards the yellow car. It was parked on a level stretch, where the road curved close to a wall of rock.

The bicycle wheels wobbled madly, and the Doctor's wild ride ended with him rolling into the heather. As he struggled dazedly to get up, he felt arms supporting him.

Premier Lutz stared into his face with concern. "My dear fellow! Are you hurt? You came an awful wallop."

Dr. Who shook his head. "I'm all right, thank you, Premier. But you've got to trust me. Your life is in danger –"

A grating whistle cut off his warning words. He whirled. A huge, grotesque shape was looming towards them, its single eye glowing green in the light from the car headlamps.

"What in heaven's name . . . ?" Premier Lutz shrank back in horror.

The Doctor grasped his arm and pulled him at a run towards the rocky wall. "Quick! Leave this to me! There's a cave. Get inside – and stay there!"

The Premier obeyed. He was just in time to stumble into the shelter of the cave, for the Monster came at them with deadly intent.

The Doctor whipped off his cloak and turned it inside out. Its silken lining seemed to glow red in the darkness, as he held it out beside him with extended arms, like a bullfighter.

The bloated body of the Perigon lumbered past him with talon slashing. The Doctor sprang nimbly to a new stance, swirling the cape to tantalize the creature. Again it lunged, and a corner of the cape ripped under the cruel beak.

This strange battle continued until Dr. Who was struck by the Perigon's clumsy rush, and was bowled over.

As he lay there dazed, he saw the Monster looming over him . . . . He also saw the saucer-craft appear in the sky above its unsuspecting head. For a few seconds the Kreff death-ray lit up the scene. Then, with a scream, the Perigon glowed and vanished.

Dr. Who struggled to his feet and called Premier Lutz from his hiding-place. Together they went to meet Captain Riombo and Vret as they came from the spaceship.

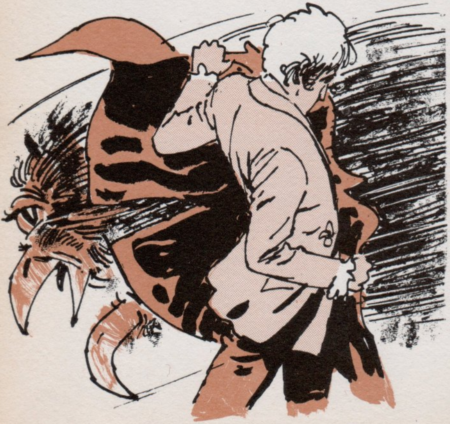
When the Doctor had told his story, the Kreff leader bowed low and grasped his hand in gratitude. "Without your help, the Perigons would have changed our history. But now we can take Premier Lutz back to the Hall in time for the conference," he said.

The Doctor pointed to the moorland road. Coming from the Hall were a number of vehicles with blazing headlights. "No need to worry about the Premier's safety now," he said. "There's an army escort on its way."

Riombo saluted. "Then our mission here is accomplished. If we could only return to the Future now . . . ."

Dr. Who held up his hand in a reassuring gesture. "If you would let me look at your Time Machine, I think I might be able to open the Vortex again for you to pass through," he said. "You see, I have had some experience of travel in Time."

And there was about the Doctor such an air of complete confidence that the Kreffs went with him to the ship with new hope in their hearts.



DR WHO
SCIENCE-WORD

■	1		2		3			4	■
■		■		■		■	■		■
5				6		■	7		
■		■	■	8					■
9			10	■		■	■		■
■	■	■		■	■	11			12
13					14	■	■	■	
	■	■		■		■	15	16	
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	■		■	■		■	20		■

clues across:

1 a very small planet
5 one of nine in our Solar System
7 water at very low temperature
8 Jo, who takes part in all the doctor's exploits
9 the brigadier is in charge
11 . . . . -out, when fuel is exhausted and combustion ends
13 the famous . . . . . . is a very special kind of vehicle
15 which doctor?
17 that which is thrown or shot
19 Dr. Who has landed . . many planets
20 high tension – as in many a Dr Who episode!

clues down:

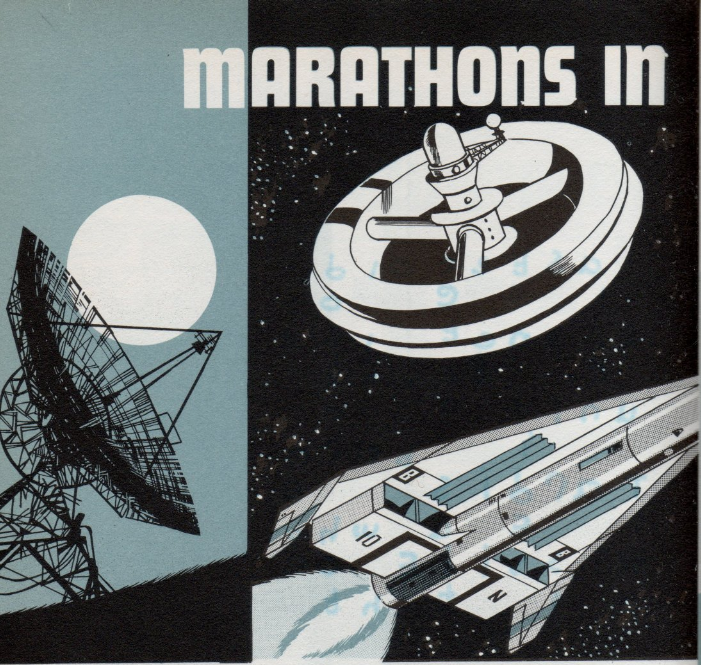
1 Van . . . . . belt, a layer of radiation many miles up
2 a decahedron is a . . .-sided figure
3 . . . . . -rockets are used to brake spacecraft on landing
4 Who, did you say?
6 for example
7 . . extenso, at full length
10 movements of the sea, due to attraction of moon and sun
12 a rare gas used in shop signs and lamps
13 The *Tardis* travels in space and . . . .
14 sodium chloride
16 of high temperature
18 specific gravity

ANSWERS

across:
1 asteroid; 5 planet; 7 ice; 8 Grant; 9 UNIT; 11 burn; 13 Tardis; 15 Who; 17 missile; 19 on; 20 h.t.

down:
1 Allen; 2 ten; 3 retro; 4 Doctor; 6 e.g.; 7 in; 10 tides; 12 neon; 13 time; 14 salt; 16 hot; 18 s.g.

MARATHONS IN



As journeys into space become more and more complex, and longer and longer, a whole new attitude has to be adopted towards them. It isn't just a journey anymore, it's really the problem of living in space. In the earlier pioneering days, it was more than enough to get a rocket and its occupants from A to B and back again; but now things are a little different. With the talk of Skylabs – manned spaceflights to Mars and Venus – coming nearer to reality every day, the scientists are having to think more and more about the interior of the rockets and the type of life that the astronauts lead inside them.

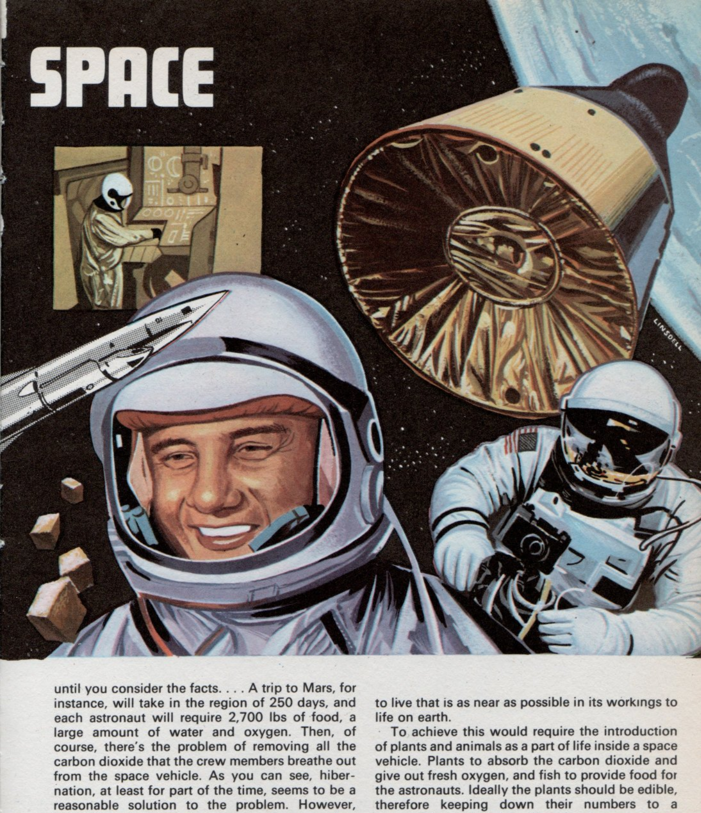
Travelling in space can be boring! Impossible, you might think. It must be the most exciting thing ever! But in actual fact for the crews who'll be orbiting earth time and time again in manned space stations for thirty to fifty men, or for the men who'll be undertaking the marathon journeys to Venus and Mars, the excitement will be very short-lived.

SLEEPING THROUGH SPACE

Ideas that seem more like science fiction than reality at the moment, are the scientist's answers. Hibernation seems to be the most popular way of making long space travel bearable for astronauts! Yes, it is possible to make human beings hibernate, just as animals do.

By reducing the astronaut's body temperature it is possible to control the amount of energy he will need to use, the amount of food he will need to eat, the amount of air he will need to breathe, etc. These things may not seem of great importance

SPACE

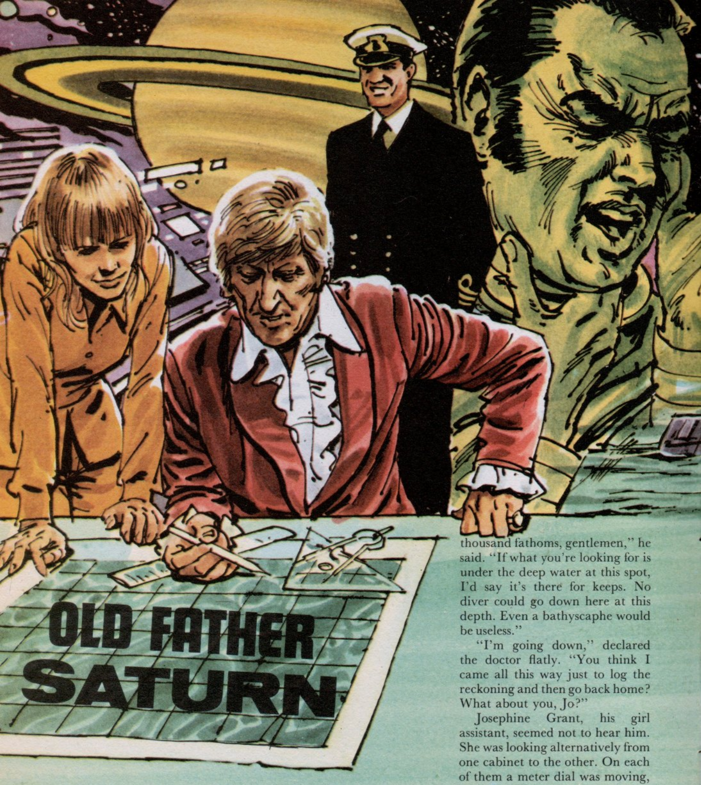


until you consider the facts. . . . A trip to Mars, for instance, will take in the region of 250 days, and each astronaut will require 2,700 lbs of food, a large amount of water and oxygen. Then, of course, there's the problem of removing all the carbon dioxide that the crew members breathe out from the space vehicle. As you can see, hibernation, at least for part of the time, seems to be a reasonable solution to the problem. However, with all the crew members asleep, the rocket has to be designed to function automatically and faultlessly – and should anything go wrong the astronauts will not be able to deal with it; indeed they won't even be aware of it.

It is with this thought in mind that several scientists have put forward the idea of a 'closed life support system', that means creating a place to live that is as near as possible in its workings to life on earth.

To achieve this would require the introduction of plants and animals as a part of life inside a space vehicle. Plants to absorb the carbon dioxide and give out fresh oxygen, and fish to provide food for the astronauts. Ideally the plants should be edible, therefore keeping down their numbers to a reasonable level and feeding the astronauts into the bargain! Of course, the system is a good deal more complicated than this, but this gives you the general idea!

It certainly looks as though future space travel is going to be a lot different from space travel today – and who knows, you may be taking part in it all . . . .



OLD FATHER SATURN

"This is the spot!" said Dr. Who emphatically. In the nuclear submarine in the Atlantic he sat between two cabinets, with a drawing board in front of him. He jabbed his forefinger on a chart on which two red lines crossed. "Just there, to a hundred metres or so, at least."

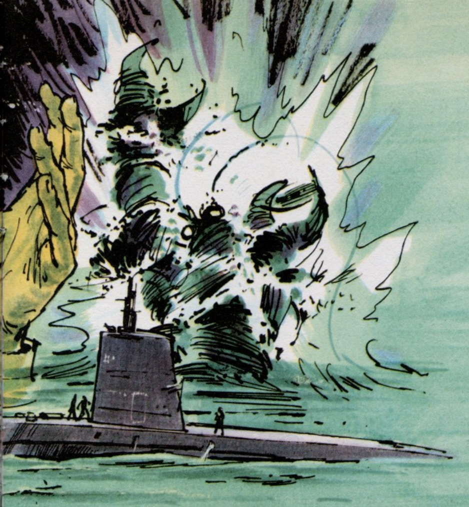
Brigadier Lethbridge-Stewart, Officer Commanding the United Nations Intelligence Task-Force, exchanged glances with the captain of the submarine, Lieut-Commander Saunders. He raised his eyebrows and the navy man grinned.

"Clear water for almost a thousand fathoms, gentlemen," he said. "If what you're looking for is under the deep water at this spot, I'd say it's there for keeps. No diver could go down here at this depth. Even a bathyscaphe would be useless."

"I'm going down," declared the doctor flatly. "You think I came all this way just to log the reckoning and then go back home? What about you, Jo?"

Josephine Grant, his girl assistant, seemed not to hear him. She was looking alternatively from one cabinet to the other. On each of them a meter dial was moving, jerkily. "The spot's moving, Doctor!" she said.

"Now!" said Dr. Who triumphantly. "Can you deny now that we must go down? We cannot leave this mystery unprobed. It might be a sunken magnetic mine, a warhead or a nose-cone, or it might be something of which we know nothing."



". . . that radiates a *regular* series of dots and dashes," said the brigadier sardonically, "in no code known on Earth?"

"It could be an automatic homing device radiating," said the doctor with a gleam in his eye and ignoring the sarcasm. "You remember, we first traced the signals just over a week ago, and the U.N. has appealed to every nation on Earth to check its codes against this, with no result. This could mean the most deadly danger to one of the world's nations, maybe to the planet itself. I'm going down, skipper. Break out a craft, if you please, sir."

Harvey Saunders cocked an eye at the brigadier.

Lethbridge-Stewart shrugged. "I'd do what he says, Commander. He's a queer bird but I've not often known him wrong. Something deuced odd about this thing and that's why my detachment is here and why you're crammed with diving suits instead of Polaris missiles."

"I did wonder," frowned the sailor. "Okay, will do." He turned to the Chief Petty-Officer standing near him. "See to it, Bosun. The launch, for a start. Then get snappy breaking out the suits."

"Aye, aye, sir," was the reply and the man vanished.

"We're too late, Doctor," cried Jo and, in the cabin all their party and the ratings on duty at their sonar screens peered at the big mirror mounted above the chart in front of Dr. Who. "Look, Doctor," the girl cried shrilly. "Whatever it is, *it* is coming up to us!

As though on cue, the submarine shuddered and the skipper sprang to a wall-telephone. "No. 1," he barked. "What goes on? You have the periscope up. Prepare to surface."

"Aye, aye, sir," came the reply from the First Lieutenant below. "Deuced great commotion, like a giant waterspout forming."

"I'm coming down, Jim," snapped Saunders. The brigadier followed him down the companionway and Dr. Who followed.

Jo made to follow but he stopped her. "Keep your eyes on the triangulation, Jo, there's a good girl. Looks to me like it's just beneath us."

"Let me know what happens, Doctor," she pleaded, but he was gone.

H.M. Nuclear Submarine *Sea-Horse* had been riding a few metres under the surface, somewhere in mid-Atlantic. Tanks were blown and the craft came up and rode on the surface. The three men came out on the conning-tower and Dr. Who stared keenly at the maelstrom of water that was receding as the screws took her a little distance from the epicentre of the commotion.

"There's something coming up!" he hissed. "Something moving, something *alive*, I'd swear to it. It must be huge, a veritable monster."

"We're a long way from Loch Ness, Doctor," laughed Saunders, and the scientist scowled. When his scientific curiosity was roused he wasn't amused.

"Are you remembering those old legends about the huge sea-creature, the mythical Kraken," put in the brigadier, "or the sea-serpent stories, all those yarns about giant monsters who live down on the bottom of the sea?"

Dr. Who stared at him witheringly. "Where the atmospheric pressure is tons to the square inch, and if any of those imaginary creatures did manage to approach the surface, they'd explode into fragments."

"Look over there, men," said Saunders and he glanced curiously at the eccentric 'egghead' he'd been ordered to obey in everything outside the actual handling of his command. "Just like you said, Doctor."

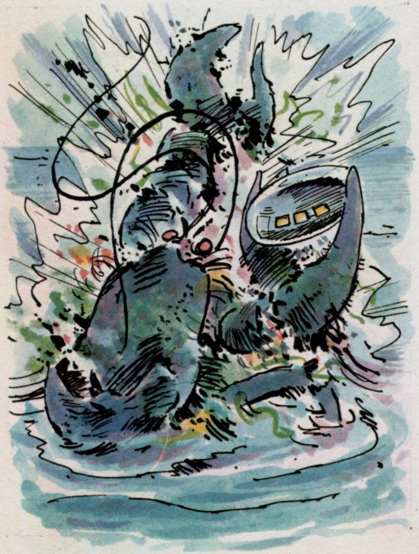
All three of them were struck dumb by the sight. In an enormous waterspout the thing came up. With a *whoosh* and a great crackling sound, it burst asunder, so that each was left with a vanished and momentary picture of the object. Dr. Who's face was cold and moist and he licked his lips.

In shape something like a colossal crab, or lobster, a creature from a grotesque nightmare, its actual shape was rendered even more hideous by the masses of trailing seaweed, showers of wet sand and broken lumps of coral, the whole thing wrapped in an enormous cloud of greenish-black ooze.

Then, and so suddenly that none of them was conscious of any passage of time, the thing vanished. From within its organism the titanic pressures under which it normally lived exploded outwards and quite literally tore the thing's body into fragments so small that the whole of them appeared like a cloud, a smudge against the sky, and then disappeared. One thing remained.

It must have been gripped in a limb or a claw or a mandible of the monster and the total disruption of the creature occurred at the surface of the ocean. So it fell only a few feet and lay on the tormented waters, and all their eyes fastened on it as the maelstrom began to subside and the creaming waters returned to their normal heaving and swelling outlines.

Dr. Who leaned forward, his eyes almost darting from his head. "It's a man-made object!" he yelled. "It's a ship, with creatures inside, dragged up from the ocean bed by that monstrous shrimp. Put out a boat, Commander, without an instant's delay. We've found the source of the signals!"



"Not so fast, Doctor," said Saunders. "I admit maybe you're right, but there's a right way and a wrong way to approach a thing like this. It might be hostile; it could be an explosive mine." He slapped the rail of the tower. "You probably know how many millions these babies cost, and it's my duty to bring it safely back to Holy Loch in one piece."

"Doctor! Doctor!" came the excited voice of Jo Grant as she clambered up the ladder. "Its stopped; the signal's stopped!"

Dr. Who pulled her up and waved at the floating object in the midst of the still-creaming waters. "That's where our signals came from, Jo!"

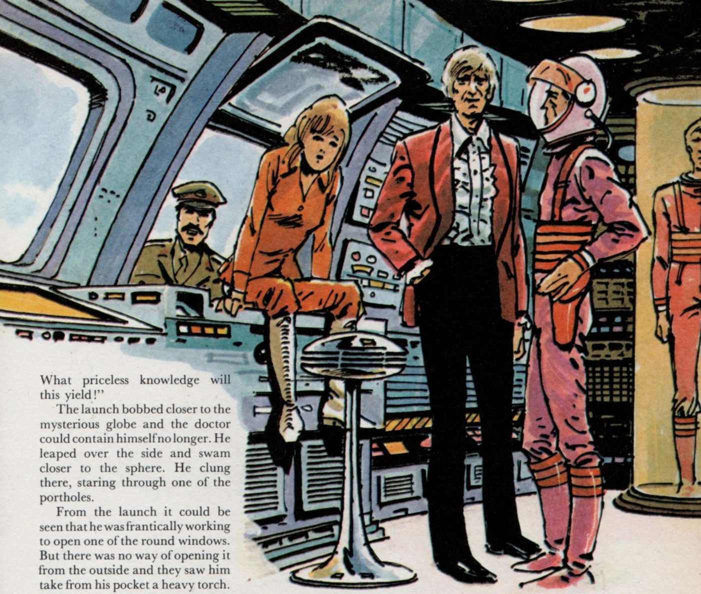
She stared intently. "What is it, Doctor?"

"We'll soon know, my child," he said briskly. "Now, Commander, how about that boat? Mustn't waste any time. My goodness, where *is* the man?"

Then he saw the deck plates open and a launch being put out and lowered. It seemed oddly out of place to see a boat being put off such a futuristic and sophisticated craft as the nuclear submarine and he laughed softly.

A rating started the motor and the three men and the girl – she refused to be left behind – stared, strangely silent, at the object they approached. Now that they were closer and could distinguish its outline from the masses of seaweed and driftwood that half covered it, they saw that it was globular in shape, about thirty metres in diameter and had a row of circular ports round its equator, just at water-level.

Dr. Who bubbled in delight. "Man-made, like I said," he crooned, "an indubitable artifact, built by creatures with intelligence. Now where can it have come from? Did it come from Space recently, or has it been lurking on the ocean floor for thousands of years, maybe a relic of lost Atlantis or Lemuria? What treasures may we find inside!



What priceless knowledge will this yield!"

The launch bobbed closer to the mysterious globe and the doctor could contain himself no longer. He leaped over the side and swam closer to the sphere. He clung there, staring through one of the portholes.

From the launch it could be seen that he was frantically working to open one of the round windows. But there was no way of opening it from the outside and they saw him take from his pocket a heavy torch. Again and again he smashed it against whatever material the window was made of, and all to no avail. They watched him still peering through, and then they reached him and he was hauled unceremoniously aboard.

"There's a *man* in there!" he shouted. "A *man*, like us! He's in a spacesuit but I saw him take off the helmet; he'll open up for us."

"Did you see any weapons?" snapped Saunders, and he drew his service revolver, as did Brigadier Lethbridge - Stewart. Then he barked into his walkie-talkie. "Break out deck guns and ready one tube for firing normal torpedo. This craft looks like a space-going warship!"

"Nonsense!" snorted Dr. Who. "Why must everything strange and unknown indicate danger and war, fighting and cruelty? The man's face . . . I'd swear he's a scientist, I tell you, a scientist, like me."

Lieut-Commander Saunders stared at him enigmatically.

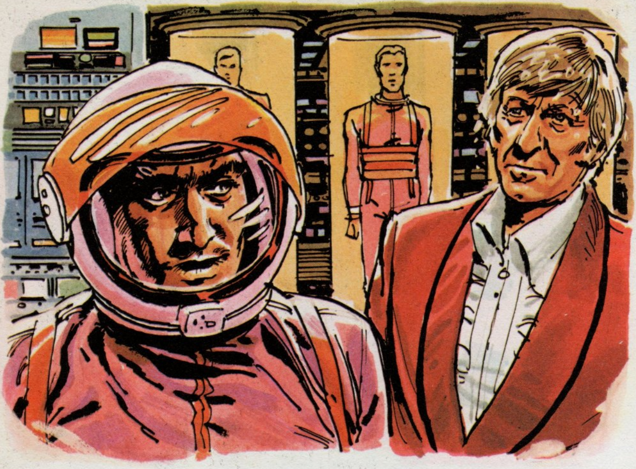
The doctor was close to the window when it opened and he was first inside.

The figure in the spacesuit stood on a level floor facing him as he climbed inside. The helmet was back on the head of the creature. He heard a voice but it did not come from the helmet; it came from a box standing on a pedestal and it spoke in English.

Saunders and the brigadier who climbed in, with Jo, after the doctor, were dumbfounded at hearing English being spoken. But Jo, like the doctor, knew that an alien tongue was coming through a universal translating device.

"We welcome you to Earth," said the doctor. "Tell us, where did you come from?"

"You *live* on this planet!" came the voice and it was filled with amazement. "But . . . but . . . as we orbited we saw only dense forests and swamps and jungles, scarely any dry land; hot, steaming rain forests filled with a multitude of reptilian monsters. Our instruments registered no intelligence higher than the brutes, certainly no human beings like you. We could not risk a landing, so we found an ocean. But something seems to have gone wrong with my suspended animation unit. It did



not operate and I am still awake. The others though, I see, are still sleeping the long slow sleep of refrigeration, and I found the automatic alarm sender switched on. It has now ceased; did you switch it off? What . . . who . . . are you?"

Dr. Who stared at the being and tried to make some sort of sense from the words. The window was still open and the two men stood with raised guns. He took a quick step and knocked up both pistols.

"Tell me," he repeated to the alien. "Where have you come from, if you did not originate on Earth?"

The other laughed. "Not from Earth, friend, but from a much larger world. I see from your mind that your name for it is Saturn. We do not live on Saturn itself; it is far too large. We live on a satellite of Saturn, a world the same size as yours, which we call Nakron. But explain to me, please, the mystery of how you – small, mammalian and air-breathing – have survived on a planet like this, dominated and teaming with millions of such vast and ferocious lizards as we saw crowding your continents and seas."

Dr. Who stared at the creature, spellbound. "You came from the system of the planet we call Saturn?" he said. "What are the Rings of Saturn?"

A frown appeared on the alien face looking at him through the face-plate.

"Rings!" was the reply. "So it came true, what we scientists foretold."

The doctor waited. He felt that the solution to the puzzle was close.

The alien spoke again. "But . . . 'how do you know about . . .' how can you possibly know? It was only a theory, after all, and it may be thousands of years before it actually happens."

"The planet Saturn," said the doctor slowly, "has a ring system round it which is unique in the solar system. Some of us believe that the rings are composed of the fragments of a moon that exploded. It orbited too close to Saturn and vast gravitational forces tore it into fragments."

"But," said the other in a tense voice, "such a thing as we theorised about would not happen for thousands, perhaps millions of years . . . ." The voice trailed away and the face staring out at them went blank.

Dr. Who thought of that globe-ship speeding in from its nine hundred million mile journey from Saturn . . . flying over the Jurassic swamps of Earth millions of years ago. There must be some rational explanation.

The face in the glass was tragic. "We warned them it would happen and we built the ship. We shot for Earth which our instruments told us was similar to Nakron, and on which intelligence had not yet evolved, for we had no wish to invade a planet already occupied by humans. That was a mere century or so ago. We travelled, of course, under suspended animation in a totally automatic ship. My cabinet failed and roused me soon after we entered your world's atmosphere . . . ." The voice stopped. "So," the voice whispered on, ". . . our ship has lain at the bottom of your ocean for how many thousands, or millions, of years! My cabinet has failed only *now*! Tell me, is this true, stranger?"

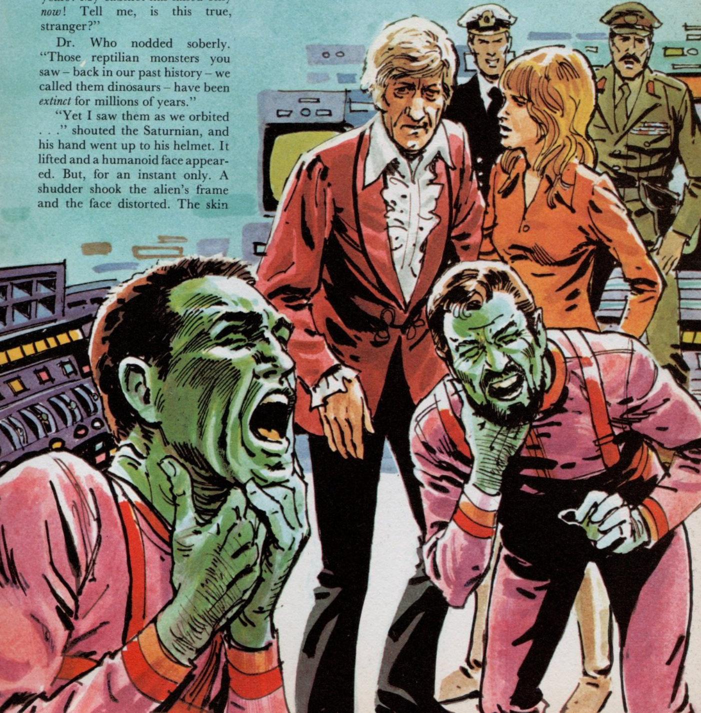
Dr. Who nodded soberly. "Those reptilian monsters you saw – back in our past history – we called them dinosaurs – have been *extinct* for millions of years."

"Yet I saw them as we orbited . . ." shouted the Saturnian, and his hand went up to his helmet. It lifted and a humanoid face appeared. But, for an instant only. A shudder shook the alien's frame and the face distorted. The skin turned green, the mouth choked and the figure slumped to the floor.

Noises drew the attention of Dr. Who and his companions and they came from several glass compartments round the chamber. They were opening, one by one, and the occupants, greenish pale, were falling as their lungs took in the atmosphere.

Dr. Who frowned. "Something in our atmosphere is deadly to them," he said sombrely.

He was thinking of that centuries' long trip of nearly a thousand million miles; of the party, frozen into sleep, plunging to the bottom of the sea and remaining there as the centuries swept over Earth, centuries which condemned the dinosaurs which ruled the planet to extinction, and which bred mankind, only just now taking his first feeble steps into Space.



the talking HEADS

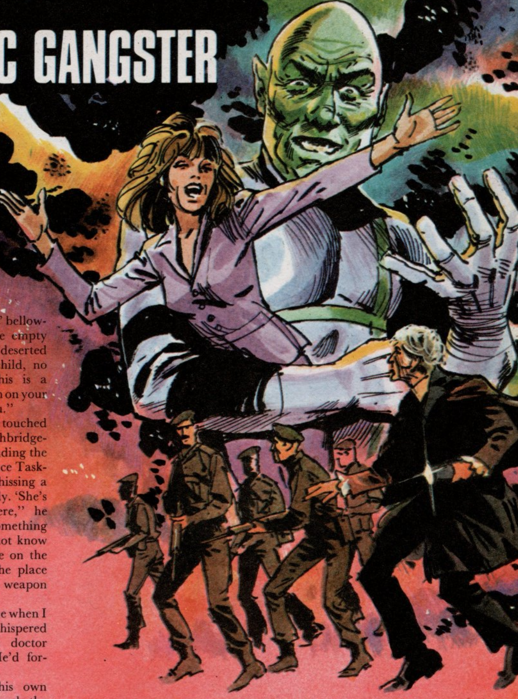
On his travels Dr. Who has seen many strange things, but as yet he has never encountered a talking head. But these unusual objects did exist and have been mentioned from early times.

Long ago in Egypt the head of the statue of Memnon sang sweet songs whenever the sun's rays fell upon it, while a brass head owned by a Portuguese giant named Ferragus told all who visited the castle about events in their past, present and future life, dispensing good and bad news quite indifferently.

When Odin, the great Norse god, visited the Underworld, Minos gave him a talking head which foretold the future. Minos was a legendary Cretan king who was very wise and who made good laws for his people. When he died, the King of Hades made him the Chief Judge of the Dead. It was Minos who listened to the story of each person's life, and decreed how that person should be rewarded or punished. The talking head he gave Odin spoke with the same wisdom as Minos himself.

Roger Bacon, who liked to dabble in the supernatural, made a bronze head which he believed would eventually speak to him. He told his familiar, who was called Miles, never to sleep, but to watch the head. But someone told Bacon that he himself had to hear the head speak or else all his plans and ambitions would come to nothing. Bacon began to believe this and, when one night the head spoke to Miles it said: "Time was, time that was, time that is past!" The head then broke into pieces that Bacon could never repair!

GALACTIC GANGSTER



"Jo! Jo! Where are you?" bellowed Dr. Who into the empty blackness of that vast deserted hangar. "Come along, child, no more fooling about. This is a serious experiment. Switch on your torch so that I can see you."

Putting out one hand he touched the arm of Brigadier Lethbridge-Stewart, Officer Commanding the United Nations Intelligence Task-Force, at the same time hissing a warning not to reply loudly. 'She's somewhere about in here," he muttered. "Someone or something has hold of her; we cannot know which. From the message on the sub-space radio this is the place and the time. And all the weapon she has is her torch."

"She had a walkie-talkie when I last saw her, Doctor," whispered the brigadier, and the doctor sucked in his breath. He'd forgotten that.

His hand went to his own transceiver and he pressed the stud and twirled the dial. To no avail; all he heard was the whispering of the U.N.I.T. personnel. He rapped out a warning and total silence echoed in his earphone, a hollow echoing silence that seemed to hint of vast, unfathomable distances. Then, from a few paces away came a choking gasp and the thud of a falling body. In desperation now he switched on his torch.

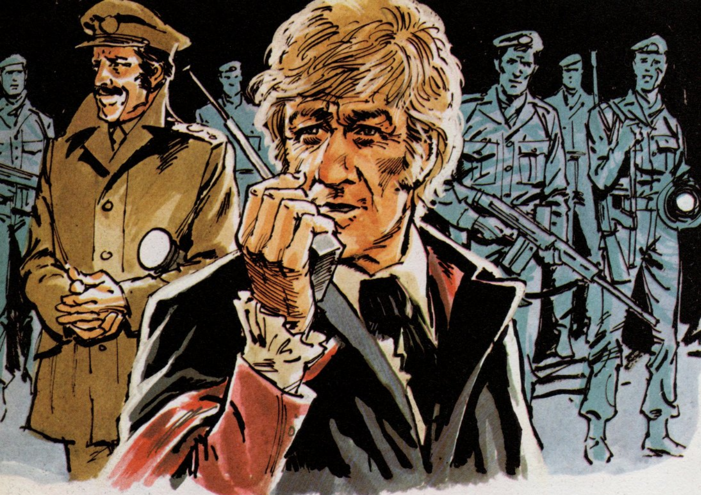
A U.N.I.T. sergeant lay sprawled out not twelve feet away. He lay quite still and the brigadier ran to him.

"I think he's dead, Doctor," he said, coming back. "Asphyxiation from lack of oxygen. You know, Doctor, the air seems pretty thin round here. I'll try something. Stand clear, all!"

He snapped on his pocket lighter and, holding the tiny flame in front of him, he went again towards the fallen man and beyond. Dr. Who watched very keenly, for he guessed what the brigadier meant. Then, as though an invisible solid object had come between the viewer and what he was looking at, the little flame went out.

It vanished and Dr. Who woke into life. Dashing forward he dragged the fallen man back towards the still-distant wall of the great hangar.

There came a gasp and a



choking cry and the brigadier came out of the darkness, holding his throat with one hand and his lighter with the other. He had snapped it on again and now the flame burned steadily.

Dr. Who knew what they had encountered. He knelt down to the fallen sergeant and saw that the man was recovering. It hadn't been more than thirty seconds since he'd gone under. The doctor straightened up and looked into the brigadier's face.

"In the middle of that space," he said gravely, "there is a total vacuum. I would guess it bears no relation to the poor vacuums our best physicists have produced. I would say that there is a space at the centre there where there is literally and absolutely *nothing*! Not even a single atom of hydrogen, no free electrons or neutrons even, no cosmic dust, just sheer absence of being!"

Lethbridge-Stewart sighed resignedly again, as he always did when the doctor launched into what to him were flights of fancy.

"You're off again, Doctor," he groaned. "What new gimmick is it now? Your assistant vanishes. You receive a message on some new-fangled *sub-space* radio you've built. You hear some garbled message which you tell me gives you co-ordinates based on distant stars and on the location of the Pole Star ten thousand years ago! This is supposed to give you a time and a place for some mysterious meeting with this imaginary signaller whose message you intercepted. What does all that nonsense add up to, may I enquire?"

"Intercepted!" jerked Dr. Who. "You mean, it might not have been intended for me? You mean it was purely by accident that I was tuned to it?"

The other nodded in the torch-light. "And for that you've dragged me and my detachment all the way to this abandoned airfield . . . and lost your own assistant into the bargain. Deuced bad show, is all I can say."

"Jo!" stammered the doctor. "Jo! Oh, my goodness, yes, where has Jo got to? She must be inside that vacuum. But that's ridiculous, impossible. She wouldn't be able to breathe; she'd choke, like that sergeant. And, anyway, she's not here . . . ." He shone the torch beam to the further wall, so far away that the light paled and vanished.

Like a man in a dream he stared round the vast hangar. U.N.I.T. personnel, maybe twenty of them, were strung out all round the walls, If Jo had gone *through* the circle or been carried *through* it by someone or some thing, she'd have been seen, the torch gleams proved that. Over his radio he snapped a request to Lethbridge-Stewart, who barked out questions to his men. Then he came back to the doctor.

"Negative report," he said crisply. "Every man alert and not the slightest sign or trace of your girl. In fact, no sign or trace of anything!"

Dr. Who ruminated. Could he have made a blunder with those figures? Taking them down he had felt vaguely that they referred to some position quite outside his knowledge of Relativity, which was extensive. A position, in fact, in Space and Time, which could only be identified in the vastness of the Cosmos by relating it to certain far-distant stars at various moments in their enormous ages. In spite of all the advanced mathematics he knew this would be a tricky job and, without a computer, almost beyond the powers of even Dr. Who himself.

The signaller, who or what could he or it be? There had been no dots and dashes, no voice or even a mechanical tone producer. The message had come directly into his mind and had registered in the pictures-without-words with which all mankind is familiar.

Itching with curiosity he stared at the ring of tiny lights. His gaze went round the vast shed and his flesh tingled as he realised that the rays of light were coming to him across a vacuum that would not hold air but which must, just must, have swallowed Jo. He could not face any thought that she was dead. He must find some way of neutralising the vacuum and rescuing the terrified girl.

Afterwards he was never quite able to recall how it had been. But all the winking lights of the U.N.I.T. torches vanished and into the circular space in the middle of the hangar, like a fantastic vision of a colossal television screen, there materialised a scene.

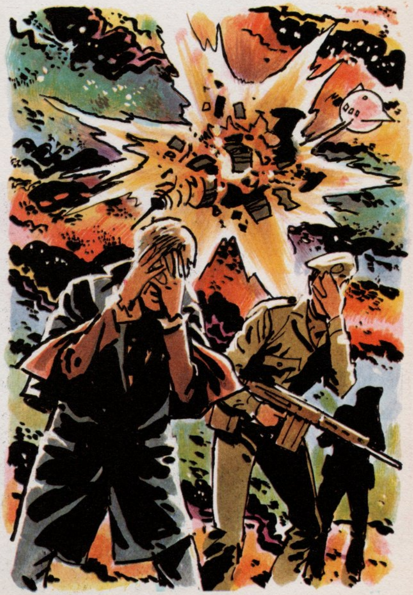
A scene! By all the galaxies, thought Dr. Who, the scene before his eyes bore no slightest resemblance to anything he had ever witnessed or even imagined in all his wanderings in the vastnesses of Space and Time.

There was colour there, great florid splashes of colour, of every tint in the spectrum, and blank spaces where the doctor guessed would be unknown and undreamed of colours which did not register in his brain, through its limited spectrum of only seven colours.

It was a battle he was seeing, a space-war to all intents and purposes. The sky was so filled with stars that it seemed almost white. This would be a vision of what it must be like at the heart of this galaxy, which we call the Milky Way, out beyond the vast stardust clouds that screen them from our view, out to the constellation of Hercules, towards which our Sun is whirling.

Spellbound and as though unable to move a muscle, the doctor and the brigadier and his men remained still, as they watched that scene of terror. The utter silence was perhaps the most daunting aspect of it all. Vast space-globes melted to fused liquid metal under the raging torrents of energy showered over them. Other globe-ships surrounded three long torpedo-shaped vessels and the three vanished utterly under the great showers of raw energy lashed over them by the attackers. It was all too much, and finally even Dr. Who closed his eyes to shut out that frightful vision.

He was shocked into awareness again by the loudest peal of thunder he had ever heard. It was almost as though the universe itself had split open.



He opened his eyes and the scene had changed. The vacuum space in the middle of the hangar was again empty. In a fraction of a second, his mind had time to wonder whether he had actually witnessed a scene that was then being fought out, or whether it had been a projection of some past or future event on his consciousness.

The great voice shattered through his head like titanic thunder from beyond reality. It was Jo he saw first; Jo in the grasp of that fantastic figure which was holding her; Jo, screaming and squirming.

The figure was eight or nine feet tall but, apart from that, it was human in form. Clad in loose silvery clothing, there was no suggestion of spacesuit or helmet, and the creature was evidently an oxygen-breather. The face was proud and haughty, as Dr. Who had imagined Milton's Lucifer.

The huge rolling voice reverberated round the place and the doctor heard the sound of rifles being cocked as the reality of the amazing scene came into the minds of the watchers.

"I hold this small creature hostage," pealed the loud vibrant voice. "I suppose this is some small primitive world on the outer fringe of this galaxy. It will be my base for the recovery of my empire, snatched from me now by the poltroons of my enemies, whom I spit upon. Here I will build up my energies. There will be minerals and gases and sun-power. I will tear this world apart to build up an arsenal that will reduce to dust the space navies these cowards sent against me and my worlds. You are called Mankind; my instruments told me before my flagship was beamed into vacuum. There are hundreds of millions of slaves here to do my bidding. I shall treat you all well, as befits a benevolent overlord. But you must work, you must work for years and years. Then we will sally out and journey again back to the Great Centre, where the giant stars burn and where every planet teams with life and is a rich source of power and energy.

"Then once more will I be Lord of the Galaxy and those other mean underlings will be my menial slaves. Then the Beginning will dawn. Then my Galaxy will send my countless energy-ships across the gulfs to storm the other galaxies, one by one, until the whole Cosmos rests under my heel."

The arrogant words echoed round the hangar, and Dr. Who had to pinch himself to see whether or not he was dreaming.

Jo's screams sounded again, for they had been drowned by that brazen voice.

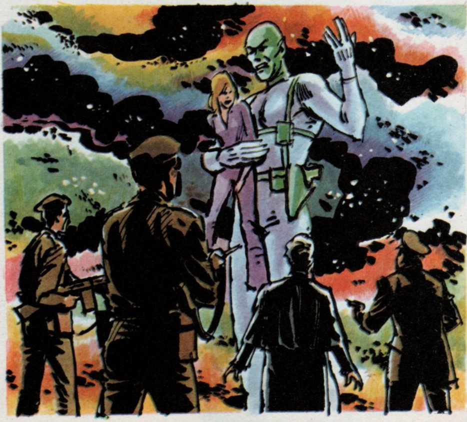
Stark, raving mad, this giant was, thought the doctor to himself. Still, the creature really did look formidable, didn't he? What was all that nonsense about galactic wars and energy ships and all such poppycock? But Jo was the creature's prisoner and whatever had to be done about this insane scoundrel, Jo had to be freed first.

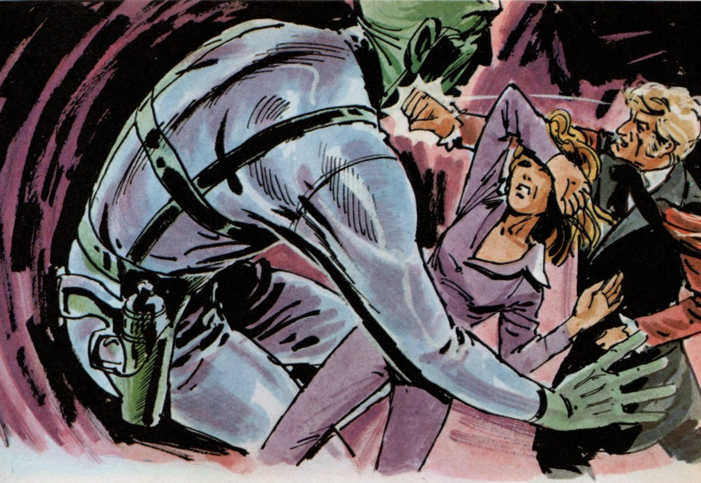
Reaching out, he touched the brigadier's arm. "Let's go in and get him!" he muttered.

"But this . . . this . . . creature has miraculous powers!" hissed the soldier. "That space-battle – the way he sprang out of invisibility his words – that talk of the heart of the galaxy . . . . No, Doctor, this is more than we can cope with. Armies will be needed to deal with this sort of thing."

"Nonsense," snapped Dr. Who testily. "All that claptrap about energy-ships and such pipe-dreams. The creature is nothing but a criminal thug, a gangster. You've had 'em all on Earth in your time: Hitler, Napoleon, Attila, Genghis Khan . . . . The fellow bawls louder and is a bit larger that's all. Our gangster conquerors thought only of countries and nations. This monster thinks in terms of planets and suns and galaxies. There's never been a madness as great as this in all our history."

"Look!" jerked the brigadier. "There's another one coming out. There'll be more, thousands, maybe millions, flooding Earth. This is more than we can face, Doctor!





This is fantastically impossible!"

Dr. Who didn't hear his words. When the clap of thunder had died down he was leaping towards the giant creature holding Jo.

Lethbridge-Stewart had no option but to follow him. He cast one despairing glance at the figure which had emerged from the vacuum under the thunder and then he leaped forward. He took in the huge figure of the first invader, now so close. It had weapons, energy-weapons he supposed vaguely, whatever they might be, over its shoulders and clipped to a belt. But it made no move to use them – who would bring cannon to fight with mice? With vast hands on knees it leaned forward and grinned into Dr. Who's face.

"So I've a *duel* to fight, small creature!" the great voice rumbled. "I'll rub you out first, then . . . ."

With every ounce of strength and willpower in him, Dr. Who's fist lashed outwards and upwards and connected with the jaw of the adversary. From bulging eyes, Lethbridge-Stewart saw fury come into the huge eyes, to be blanked out as consciousness left it. Like a colossus it toppled and fell, narrowly missing Jo as she sprang up.

Another loud voice now sounded. "What is that weapon with which you vanquished this criminal, O Man?"

Looking up, Dr. Who saw a replica of the being he had just felled. But in this face and eyes there was no hatred and no fierce, satanic rage, but wisdom and intelligence and compassion.

The doctor laughed and sucked his knuckles. He could not fear this one. He held up a clenched fist. "Just the first weapon that Mankind had," he said mildly, "maybe the best weapon of all."

The creature smiled down at him. "The delightful simplicity of a naive primitive man," the voice said. "And where all our navies and our mighty weapons failed, it brought down this last of the Galactic conquerors. I will take him away from here and leave you in your primitive paradise. In millions of years you and your kind may one day evolve to be like us."

"Where are you from?" asked the doctor calmly. After all, this was a man, even if a little outsize in bulk. "Who are you and what will you do with this one?" He pointed to the unconscious giant.

"Only the last question may I answer. He will be *unmade*. The life-span he had will be retraced then bypassed. To all intents and purposes he will *never have been* . . . it will be . . . but I see that such a concept is far beyond your minds. So farewell, remote ancestors of mine, farewell!

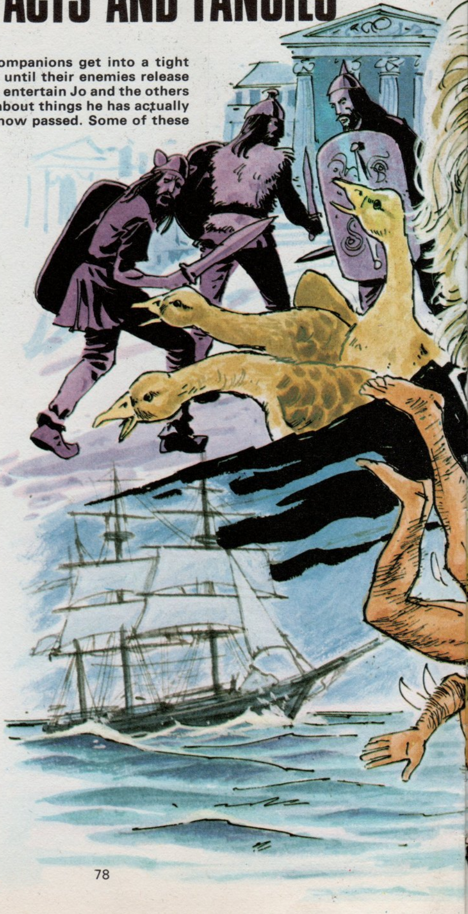
Then all at once and this time in silence, there was darkness in the great hangar and the soldiers of U.N.I.T. with their torches and their pale, terrified faces came across the circle where once again there was air and space and no longer that impossible vacuum in which they had seen . . . now just what had they seen?

Dr. Who and Jo and the brigadier looked at each other and the girl gave a crazy little laugh.

"I'll go out to the trucks and lay on strong hot coffee all round, shall I, Doctor?"

DR WHO'S FACTS AND FANCIES

Whenever Dr. Who and his companions get into a tight corner and are forced to wait until their enemies release them, the good Doctor tries to entertain Jo and the others with interesting little stories about things he has actually seen or heard about in times now passed. Some of these stories include:



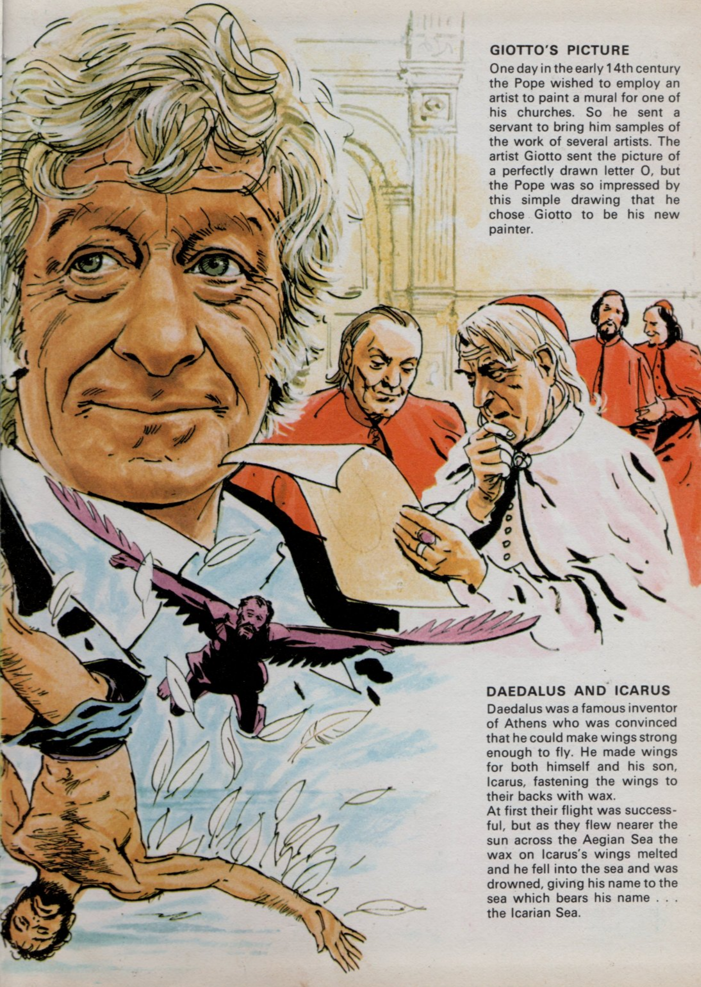
THE CACKLING GEESE

The sacred geese of the city of Rome were the first to see the Gallic soldiers attempting to climb the Capitoline Hill where the Roman garrison lay. They cackled loudly and so prevented a surprise attack upon the Roman soldiers from the enemy and saved the city. A model of a golden goose is carried around the city of Rome each year to commemorate this event, which took place almost four hundred years before the birth of Christ.

THE FLYING DUTCHMAN

The Flying Dutchman was a sea captain who, despite the pleas of his passengers, persisted in trying to sail round the Cape of Good Hope. Even when a spirit, believed to be sent from heaven, told him not to continue his voyage, the Captain merely laughed and tried to kill the spectre.

As a result he was condemned to sail the seven seas until the day of judgement as a punishment, and never find peace. Many sailors tell of seeing this doomed ship and its captain, who tries to lure them onto the rocks to their death.



GIOTTO'S PICTURE

One day in the early 14th century the Pope wished to employ an artist to paint a mural for one of his churches. So he sent a servant to bring him samples of the work of several artists. The artist Giotto sent the picture of a perfectly drawn letter O, but the Pope was so impressed by this simple drawing that he chose Giotto to be his new painter.

DAEDALUS AND ICARUS

Daedalus was a famous inventor of Athens who was convinced that he could make wings strong enough to fly. He made wings for both himself and his son, Icarus, fastening the wings to their backs with wax.

At first their flight was successful, but as they flew nearer the sun across the Aegian Sea the wax on Icarus's wings melted and he fell into the sea and was drowned, giving his name to the sea which bears his name . . . the Icarian Sea.